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ORIENTAL STUDIES, NO. 7

THE FREER CHINESE BRONZES

Volume I Catalogue

BY
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NOEL BARNARD



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IN MEMORIAM
ARCHIBALD GIBSON WENLEY
(1898-1962)

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PREFACE

The first published catalogue of Chinese bronzes in the Freer Gallery of Art appeared in 1946 under the title *A descriptive and illustrative catalogue of Chinese bronzes acquired during the administration of John Ellerton Lodge*. It was Number 3 in the series known as Freer Gallery of Art Oriental Studies; and, as the title indicates, it dealt only with those bronzes added to the collection by Mr. Lodge. By 1956 that book was out of print, and Mr. Wenley began to think in terms of a second bronze catalogue to include the many important pieces that had been added during his directorship. Unfortunately he died just as the project was getting well started, and the work has been carried on by the Gallery staff and has been expanded to include all the ceremonial vessels in the collection.

During the last four years the preparation of the manuscript has occupied the time and effort of a good many members of the staff. The principal burden has fallen on the shoulders of Rutherford John Gettens, Head Curator of the Freer Gallery Technical Laboratory, who has planned and supervised the technical work on all the vessels, and has written the Technical Observations in Volume I and the whole of Volume II. In this work he has had the able assistance of Mrs. Elisabeth West Fitzhugh, Mrs. I. V. Bene and W. T. Chase. Considerable assistance on the technical side has been received from outside sources, and this is acknowledged in detail in Volume II. The basic research and most of the writing for the section on Style and Chronology was done by Dr. James Cahill while he was still on the Freer Gallery staff, and he has continued to be helpful since his departure in the summer of 1965 to join the faculty of the University of California at Berkeley. The study of the inscriptions was undertaken by Dr. Noel Barnard of the Australian National University at Canberra; and he has supplied all the inscription notes for Volume I, and has written the whole of Volume III. The writer of this preface has prepared the preliminary descriptions for each bronze, and has collaborated closely with Dr. Cahill and Mr. Gettens on the Style and Chronology and the Technical Observations. All three of us have been quite free in our criticism of one another's work, and we have tried to make the book a consolidated statement of our common effort and knowledge. For geographi-

cal reasons the same close collaboration has not been possible with Dr. Barnard, and except for routine editorial changes the sections on inscriptions are his work alone.

The photographic work has been carried out by Raymond A. Schwartz, Chief of the Freer Gallery Photographic Laboratory, and his industry and patience in cooperating with three extremely demanding authors have been exemplary. He has at all times had the cooperation of his Assistant Photographer, James W. Riggs. Several Librarians have helped with the bibliographic work. Mrs. Bertha M. Usilton got the task started before her retirement, and it was carried on by her successor Mrs. Constance B. Olsen and the Assistant Librarian Mrs. Aleita M. Hogenson, and finally brought to completion by the present Librarian Mrs. Priscilla P. Smith. Takashi Sugiura made the rubbings of most of the inscriptions and Takashi Katsuki has provided translations and summaries of excavation reports from mainland China thus saving us much time in keeping up to date with current archaeological activity in the field. The maps were drawn by Frank Haenschke; and the jacket was designed by Crimilda Pontes. Innumerable copies of the manuscript have been typed and retyped and all the notebooks and files have been kept in order by Mrs. Daphne McCloskey and Miss Lucille Aldrich.

The final and painstaking task of bringing this huge mass of material together and putting it into publishable form has been the responsibility of our Editorial Secretary, Lloyd E. Langford. He has worked out the problems of style and layout for all the text and text figures as well as for the plates, and has handled the negotiation of all practical matters with the printer. Harold Hugo and John Peckham of the Meriden Gravure Company have spared no pains in providing us with trial proofs until they got exactly what we wanted. Finally we are indebted to The Ford Foundation for a substantial grant to assist in the publication of this volume which we hope is a fitting memorial to Archibald Gibson Wenley whose initiative and scholarship brought it into being.

JOHN ALEXANDER POPE

Washington, D.C.
June 1966

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BRONZES LISTED IN NUMERICAL ORDER

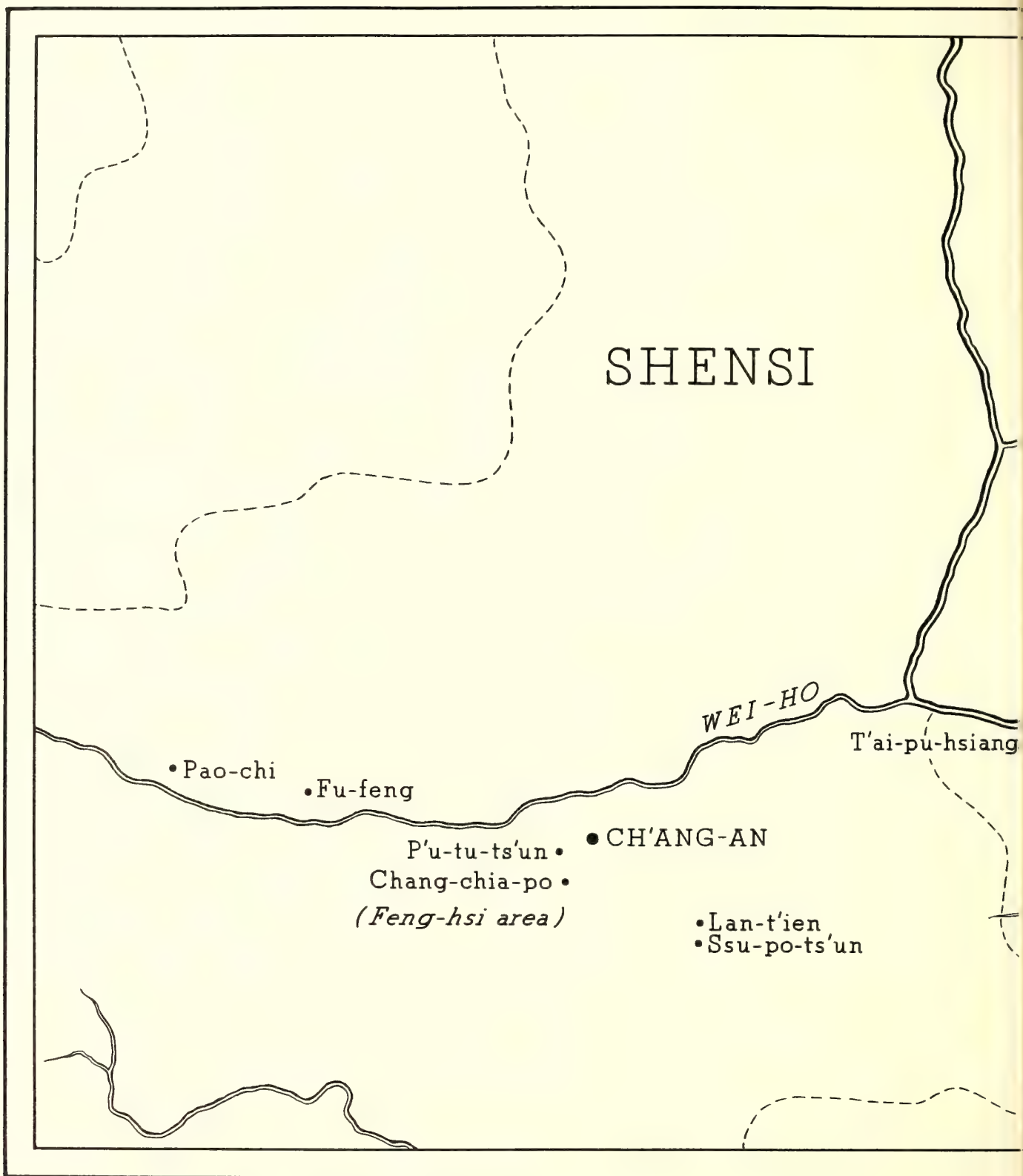
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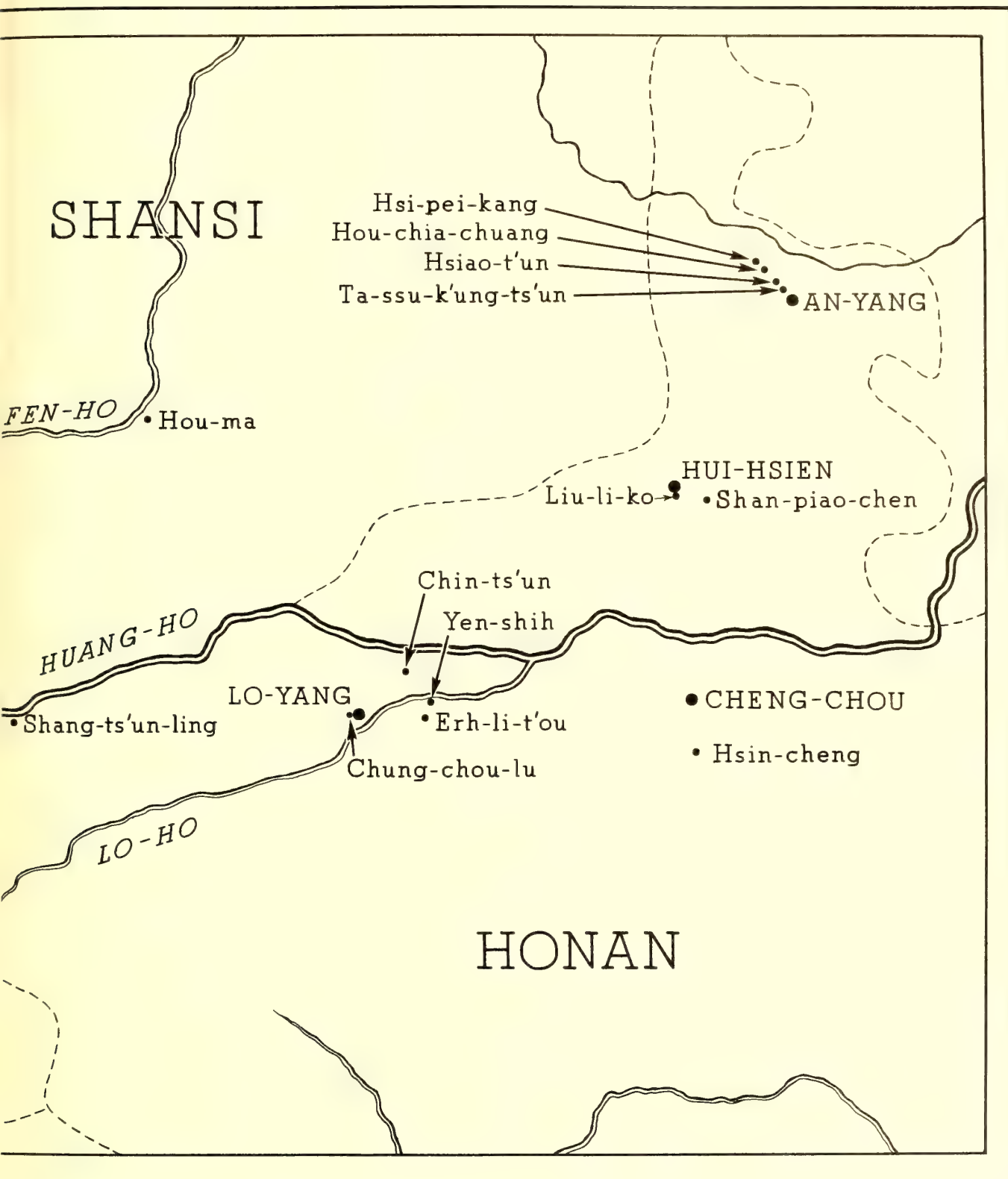


MAP OF CHINA

MAIN CITIES AND SOME HISTORICAL SITES



SKETCH MAP OF THE YELLOW RIVER VALLEY WITH
THE BRONZE SITES REFERRED TO IN THIS VOLUME.



SHANSI

Hsi-pei-kang
Hou-chia-chuang
Hsiao-t'un
Ta-ssu-k'ung-ts'un
AN-YANG

FEN-HO
• Hou-ma

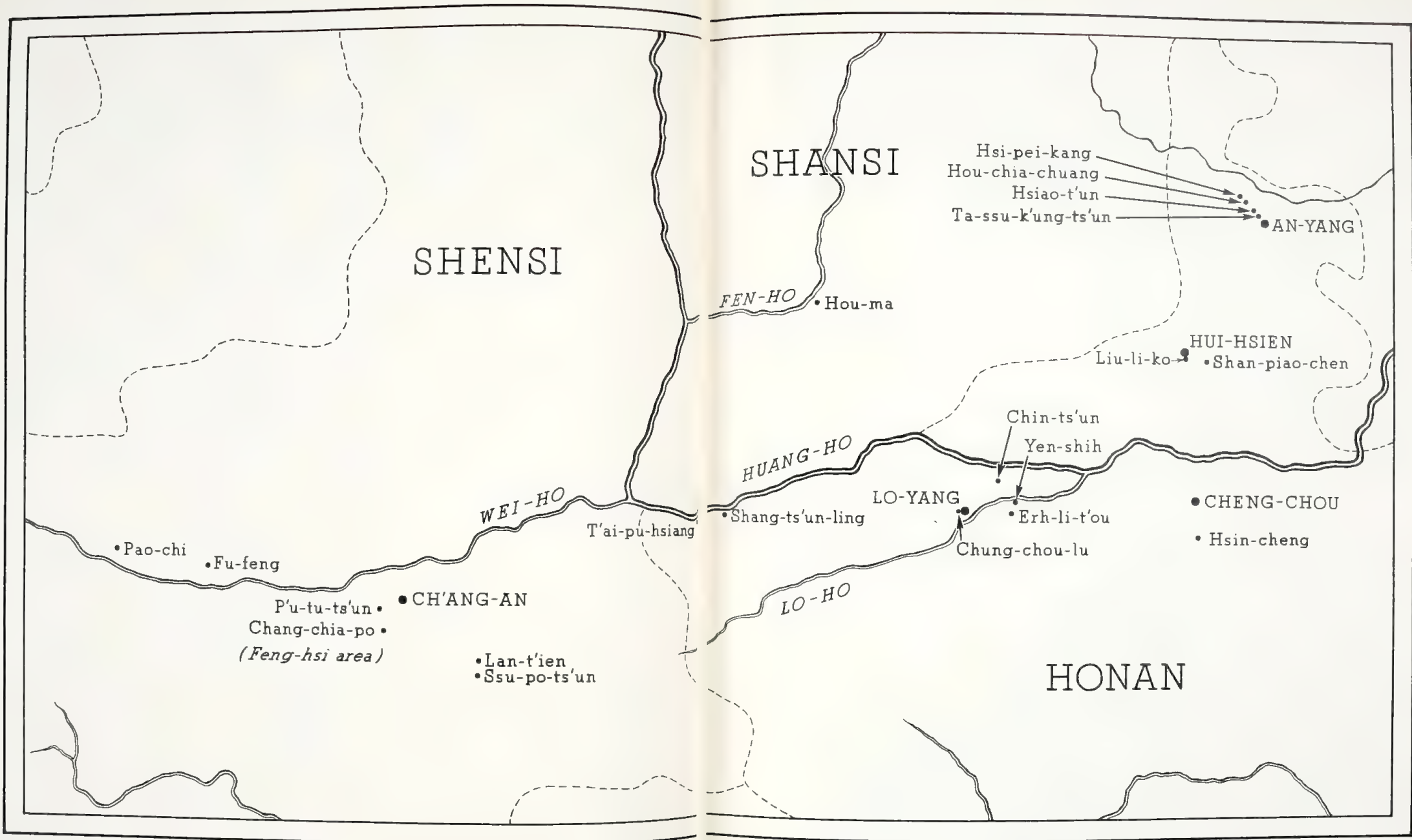
HUI-HSIEN
Liu-li-ko
• Shan-piao-chen

HUANG-HO
Chin-ts'un
Yen-shih
LO-YANG
• Shang-ts'un-ling
• Erh-li-t'ou
Chung-chou-lu

• CHENG-CHOU
• Hsin-cheng

LO-HO

HONAN



SKETCH MAP OF THE YELLOW RIVER VALLEY WITH THE BRONZE SITES REFERRED TO IN THIS VOLUME.

INTRODUCTION

THE COLLECTION AND THE CATALOGUE

Charles Lang Freer bought his first Chinese ceremonial bronze in 1894, and this book is a catalogue of the 122 vessels that make up the collection begun with that purchase. Of that number Mr. Freer himself collected 58 before his death in 1919. The first director of the Freer Gallery of Art, John Ellerton Lodge, continued the collection by adding 28; and 31 more were acquired by the second director, Archibald Gibson Wenley. Finally four bronzes were given by Mr. and Mrs. Eugene Meyer in accordance with the provision of Mr. Freer's Will that made the gift possible; and one Han bronze was purchased in 1966. The collection thus formed is of interest for several reasons. Not only does it provide a selective sampling of the Chinese bronze caster's art from the An-yang period of the Shang dynasty down to Han times, it also covers the history of bronze collecting in the West. Not only does it include a good many vessels of the highest quality, it also has some examples of indifferent and even downright poor workmanship. And finally, while more than 100 of the bronzes are genuine products of their times, some 15 vessels are clearly later copies, imitations, or interpretations of archaic types, and at least two others are doubtful.

In recent years catalogues of Chinese bronzes have customarily included only those pieces which the compiler, or the collector himself, considered entirely above reproach in every way. Quality and authenticity are the twin goals; and when one or the other of these was wanting, the offending bronze was unceremoniously swept under the rug. The original plan for the present catalogue was drawn up with the same formula in mind; it was to include only fine quality bronzes of unquestioned authenticity. That meant, in effect, a re-examination of the bronzes bought by Mr. Lodge and already published in 1946, to see what new light might be thrown on them by the scholarly progress of the last two decades, and the first detailed publication of the bronzes added by Mr. Wenley and the four in the Meyer gift. In other words over half the bronzes in the collection would be left out; and further than this, they would in all probability never be published for it seemed most unlikely that anyone would ever take the trouble to make a separate publication of the lesser ones alone. While many of them are of inferior quality and some are later archaistic

copies of the real thing, all of them are instructive in one way or another. All can teach something about the bronze caster's art, something about the ideas that motivated the copyist and the forger, and something about the history of knowledge and taste among collectors.

No one publication could include all the bronzes in the collection, and some sort of limits had to be drawn. For that reason the scope of this work is strictly limited to the ceremonial vessels. The famous Middle Chou tigers and the great Late Chou bell, already published in 1946, have been omitted; and they together with weapons, incense burners, mirrors, belthooks and the rest will have to await future study and publication. With the decision made, the problem was to arrange the bronzes in some sort of reasonable order and to get together as much information as possible about each one. The examination of many bronze catalogues reveals that the Chinese, tradition-bound as they are in so many ways, have never been consistent about the sequence of types. The arrangement used in this volume is purely our own and is basically, though not strictly, chronological, in the first place because a precise and rigid chronology still eludes us, and in the second because it is sometimes more useful to deal with a series of vessels of one type running through a long period without interruption. In general the later copies have been placed along with the ancient vessels of the types the copyist was trying to imitate. They are uniformly given the designation "recent"; and this is intended to signify simply that they are post-Han in manufacture. There is still much uncertainty about whether any individual bronze was made in Sung, Ming, or Ch'ing times; and only now is the matter beginning to receive serious attention. In some cases, where any sort of indication is available, the question has been discussed in the description of the individual vessel.

A heading for each vessel gives the type-name, accession number, period, inscription data, dimensions and weight. This is followed by a brief description and where applicable some of Mr. Freer's own notes on bronzes he bought. The detailed documentation is then set forth under the following headings:

Style and Chronology – Here the shape of the vessel is compared with the shapes of others of similar type, and similarities and differences are noted with reference wherever possible to published examples for which either the inscription texts or the circumstances of excavation tend to provide hints to chronology. The decoration or any significant features thereof are subjected to a similar comparative study; and the statement as a whole provides the

basis for the date suggested for the vessel, especially in the case of uninscribed bronzes and those with uninformative inscriptions.

Technical Observations – Each bronze has been subjected to a detailed examination and analysis. Using all the scientific techniques available to us, including microscopy, metallography, analysis by spectrographic, X-ray diffraction, and wet chemical methods, examination in ultra-violet light, and in many cases radiography, we have tried to find out everything we can about the physical and chemical properties of the alloy, about the methods by which the vessels were made, decorated and inscribed, and about the nature of the processes of corrosion which have altered the metal in the course of centuries. All the facts we have been able to find have been recorded for each bronze and the analysis of the alloy is included. Except for the work done by Japanese chemists on mirrors and weapons that is referred to later, this is, to the best of our knowledge, the first time any considerable group of ancient Chinese bronzes has been systematically studied in a technical laboratory. It has, therefore, seemed worthwhile to set forth, in addition to the facts about each individual vessel, some general observations about the group as a whole. This is the subject of a separate volume. It may be just as well in this connection to state here what is implied in that volume. No amount of laboratory examination and analysis can *per se* “date” a Chinese bronze. It is simply a means of adding additional facts not otherwise obtainable to our store of knowledge, the knowledge by which in the last analysis the bronze must be judged.

Inscriptions – In the case of the inscribed bronzes, we have had to go outside the Freer Gallery staff for help; and the work of Dr. Noel Barnard of the Australian National University, Canberra, has already been acknowledged. With his customary thoroughness he has subjected each inscription to the most searching scrutiny and has brought to bear on it his encyclopedic knowledge of the vast literature of Chinese epigraphy. It soon became clear that the sheer bulk of his studies would be far beyond the physical limitations of the present volume, and consequently we have had to confine the notes under the above heading to brief summaries which he has provided. In the long run, when this phase of the work is completed we hope it may be published as a third volume. On the subject of inscriptions one more point should be noted. The question of authenticity imposes itself in the field of epigraphy as elsewhere, and among the 65 inscribed bronzes are a number of perfectly genuine vessels with inscriptions which Barnard declares forgeries.

These cases are described as they occur and need not be cited in detail here, but a summary statement seems desirable to make our position clear. To reconcile the presence of an inscription he considers a forgery in a bronze otherwise considered genuine, Barnard states that the characters of the text have been cut into the bronze in recent times; "spuriously incised" is the phrase he favors. He holds that we must either accept the fact that the inscription is incised or, if we insist that the inscription is cast with the vessel, accept the fact that the vessel itself is a forgery. We do neither. When this irreconcilable conflict of opinion first appeared, we took the bronzes concerned back to the laboratory for further and, if possible, even more thorough examination. Considering the nature of bronze in general and of corroded bronze in particular, we believe it unlikely that an incision could be made in the surface without leaving at least some trace of the tool. Re-examining the characters in the suspect bronzes with a variety of lights and magnifications and by probing the corrosion products in and around the strokes, we compared them by the same methods with the characters of other inscriptions which had raised no doubts of any kind. This latest and most thorough examination tends to support our contention that an inscription incised in cold corroded bronze can hardly simulate an inscription cast when the bronze was made centuries ago to the point of deceiving the careful observer. In two cases we found the inscriptions to be incised, and a third remains in doubt. Another possibility has also to be considered, however, for mechanical cutting with a tool is not the only way of working the surface of cold bronze. Similar results can be achieved by etching with strong acids, and in this area we are still very much in the dark. The few experiments we have made in our own laboratory reveal that an etched line can be much more deceiving than an incised line if it has been carefully covered with a layer of artificial corrosion. Several of our inscriptions may fall in this category; but, in the present state of our knowledge, we have to admit that many questions remain unanswered. Such findings as we have made are recorded under the bronzes concerned (Nos. 2, 29, 33, 37, 53, 60, 64, 67, 69, 74, 78, 94), and future scholars may one day settle the matter.

THE STUDY OF CHINESE BRONZES

As a part of the great intellectual flowering that took place in Northern Sung (960–1127), the study of ancient ceremonial bronzes first took shape

under the guise of epigraphy. The writings of the ancients have always commanded the respect of the Chinese; and in the eleventh century no less distinguished a statesman, historian, literary critic, and essayist than Ou-yang Hsiu (1007–1072) compiled and annotated the first repertory of archaic inscriptions, the *Chi-ku-lu*, which included some bronze texts. As the century drew to a close, Lü Ta-lin published the first illustrated catalogue of ceremonial bronzes, the *K'ao-ku-t'u* (1092); and some time in the Hsüan-ho reign (1119–1126) the Emperor Hui-tsung saw the completion of the great catalogue of the more than 800 bronzes in his collection, compiled by a committee of scholars under Wang Fu. The bibliographic history of these works and their supplements, and of the great Ch'ing dynasty catalogues that followed them, though only after a lapse of more than six centuries, is well known to specialists and hardly germane to the purposes of our book so it need not be repeated here.

In the West, the first book devoted to Chinese ceremonial bronzes may well be Thoms' delightful little volume, *Ancient Chinese vases of the Shang dynasty*, published in London in 1851, the same year that saw the publication in Paris of Biot's translation of the *Chou-li* (The Rites of Chou). In this work the author, P. P. Thoms, who had been sent to China to oversee the printing of the Rev. Dr. Morrison's *Chinese dictionary*, translated and annotated the descriptions of 42 vessels and a mirror from the *Po-ku-t'u-lu*. The extent to which the Western view of China and things Chinese has changed in the last 115 years is perhaps most clearly demonstrated by quoting the paragraph with which Thoms closes his pioneer effort:

“While the preceding paper introduces the Reader to an acquaintance with the ancient usages and rites of the Chinese, during their early history, it cannot have escaped his notice, that the embellishments of the Vessels, if not elegant, are always chaste, and, as it has been shown, were admonitory. Regretting, as we must, their ignorance of God's Word, it is pleasing, in the midst of great darkness, to see the happy effects of the principle of *filial piety*, or reverence for parents – respect for the elders of the same family – and for those who hold important situations. This principle, or doctrine, was doubtless held by FUH-HE, and his immediate descendants; but CONFUSCIUS embodied it, and caused it *to be*, as they say, *a blessing to ten thousand ages*. We wonder not, therefore, that so many Vessels should have the character *Tsze*, a ‘son,’ and *Sun*, a ‘grandson,’ as well as the many significant devices by way of ornament, nor the most invariable

attendant, the *all-seeing* eye, engraved on them, implying the inevitable consequences of impiety.”

From this earnest beginning sprang a whole Western literature on Chinese bronzes, mostly in English, which by now runs to hundreds of titles, With rare exceptions ceremonial bronzes did not begin to reach the West until the 20th century; and while some very good pieces came over by 1911 or 1912, the really fine bronzes that are the pride of our collections today did not appear until after the first World War which was, be it noted, also after the fall of the Chinese Empire. This progress is quite naturally reflected in the bibliography; and with appearance of the first volume of Yetts' monumental three-volume catalogue of the Eumorfopoulos Collection in 1929, serious study had really begun. In that same year the excavations at An-yang were already in progress; and as the revelations of that site transformed the Shang dynasty from legend to history, the pace increased. From that time until World War II our view of ancient China was almost revolutionized by the publications of H. G. Creel, Jung Keng, O. Karlbeck, B. Karlgren, Kuo Mo-jo, Liu T'i-chih, Lo Chen-yü, and Umehara Sueji among others.

Since the advent of the new regime in China, archaeological work has flourished to an extent never known before in that country; and the publication of the findings has proliferated accordingly. In the last 15 years the periodical now known as *Wen-wu* has issued more than 50 numbers, each containing several articles of archaeological or antiquarian interest; and since 1956 some 50 numbers of *K'ao-ku-hsüeh-pao* (also under varying titles) have brought us an additional wealth of important contributions. Monographs dealing with individual sites have appeared in the series entitled *Chung-kuo-t'ien-yeh-k'ao-ku-pao-kao-chi* to the number of more than a dozen volumes in the last decade. This veritable spate of Chinese archaeological writings has had its effect on Western scholars who in the last 20 years have brought forth some 20 important books or catalogues and more than 60 articles on the subject of ancient China and largely concerned with bronzes. In Japan the researches of Mizuno and Umehara and others have continued to supply valuable material.

As the writings of the 1930s and '40s brought to life the late Shang civilisation at An-yang, so the disclosures of the '50s and '60s have not only filled in many details of that picture and contributed greatly to the knowledge of the sprawling complex of the succeeding Chou culture in widely separated parts of China, but also revealed the existence of a pre-An-yang phase of Shang

history. The site of Erh-li-tou in Yen-shih Hsien, Honan Province (between Lo-yang and Cheng-chou), has been identified with some confidence as the capital city of T'ang, the founder of the Shang dynasty. While no bronze vessels were found there, the ceramic prototypes of such vessels as the *ting*, *li*, *ku*, *chia*, *chüeh*, *huo*, and others, foreshadow the ritual paraphernalia associated with the later centuries of the dynasty. Again, in less than two decades our whole view of early China has been revised and enlarged. Pre-An-yang bronzes are not represented in the Freer collection at this time and hence need not be discussed; but a number of them have made their way to the West; and the publication of finds made in recent years has made it possible to identify those few strays in various collections that had been troublesome because they did not fit comfortably into any of the familiar categories provided by our knowledge of An-yang and the various subdivisions of Chou. With the materials thus made available, we are a step nearer to an understanding of the beginnings of bronze culture in China. But the final gap in our knowledge still remains, for it is hard to imagine that a people in the experimental stages of a new technique, whether imported or indigenous, could produce such finished work as that which went into the taut and elegant vessels of earliest times with their spare and meticulous decoration.

It is a curiously contradictory fact that in spite of this considerable increase in our knowledge of early China, we still know very little or nothing about how the bronze vessels were used. One of the essential facts of the social and political life of Shang was that in exercising the powers of government, the rulers and government officials at various levels depended on the wisdom of their deceased ancestors. To get sound advice they had to stay on good terms with them; and this meant rigorous adherence to ceremonial protocol. The right offerings had to be made and the appropriate sacrifices performed, each in its proper season. Questions to the ancestor-gods were embodied in the oracular sentences inscribed on tortoise shell and bone; and the answers, awaited no doubt with the most solemn dread and awe, were revealed by priests who were often as not the kings themselves, skilled in the interpretation of supernatural phenomena and occult signs. This much we know from the study of the tens of thousands of fragments of oracle bones that have been recovered from the Waste of Yin, as the site of the Shang capital at Hsiao-t'un near An-yang was traditionally called, a study that has gone on almost continuously ever since the bones began to turn up at the end of the last century. Here our knowledge ends, and we are forced to fall back on assump-

tion. It may be fair to assume that the bronze vessels that adorn our museums today were used in the performance of those propitiatory ceremonies in one way or another. No contemporary text survives to give us a clue; and even in the longer inscriptions of early and middle Chou which include historical facts and personal data of great interest, which often tell us *why* the vessels were made, they still fail to reveal the secrets of *how* they were used when the ceremony was in progress.

A text of much later date contains a passage that may be suggestive if we treat it as no more than that. It is a part of the Chinese literary tradition that in the year corresponding to A.D. 281 there was dug up in a tomb presumed to have been that of King Hsiang (reigned 318–296 B.C.) of the late Chou State of Wei, a text describing the celebrated, if legendary, travels of King Mu of the Chou dynasty. This text, the *Mu-t'ien-tzu-chuan*, which is considered by some to date only from the first century A.D., introduced into Chinese lore the account of the incredible eight horses of King Mu which could each run 1,000 *li* a day, and tells the story of the King's visit to the fabled realm of Hsi-wang-mu, the "Queen Mother of the West" whose identity has given rise to so much scholarly speculation; and who, in the more romantic and imaginative days of Sinology, was once tentatively identified with the Queen of Sheba.^a In Chapter 6 of this famous legend is the tragic story of the Lady Sheng, most beautiful of the ladies of the court and loved by the King above all others. One day, accompanying the King while he was trapping animals in a marsh, the Lady Sheng caught cold; and in spite of all that could be done, a few days later she died. In the description of her funeral we read: "Tseng, the sacrificial officer, was in charge of the sacrificial tables on which he spread offerings such as meat soup, raw meat, dry meat, minced meat, dates, millet-gruel, cold porridge, dry fish, scallions, and a hundred other things. There were twelve *tsu* of raw meat and raw fish, ninety *tou* of cooked meat, and forty *ting*, *tun*, *hu*, and *tsun* of hot food and wine. Tseng, the sacrificial officer, began offering the sacrifice by presenting the soup and the wine to the chief mourner, I Hu, who received them with a bow and presented them to the spirit of the dead. The ladies also presented their offerings to the chief lady mourner, Yung Tso, who performed the ceremonies as had I Hu. The sacrificial officer then gave some of the wine to the court musicians."

^aForke, A. Mu Wang und die Königen von Saba, in *Mitteilungen des Seminars für Orientalische Sprachen*, Berlin, v. VII (1904) pp. 117–172.

THE VESSELS AND THEIR DECORATION

Questions of the vessel types and of the varying shapes and styles as well as the decorations, as these factors relate to the chronological development of the bronze art, are discussed in detail for each bronze, and there is no need for a resumé of that information here.^b On the other hand a few general observations may help to provide a framework for some of the detailed information and terminology that come later.

As might be expected, some of the vessels are carry-overs from pottery shapes that were known and used in the pre-bronze Neolithic age. The tripod called *ting* is one of these; and this type, basically a hemispherical bowl on three solid legs, is one of the two most enduring types. The *ting* and a basic vase type called *hu* survived without interruption but with certain easily recognizable changes of form, from Neolithic times right on down to the Han dynasty. Both forms in fact lasted through the whole of Chinese history; but in post-Han and later times they tended to be archaistic, imitating one or another of the classic forms, rather than to develop along new lines. Equally ancient and apparently uniquely Chinese is the *li* (not represented in this collection), another tripod form distinguished by the fact that the bottom of the bowl is divided into three parts which become the hollow legs on which the vessel stands. Going back equally to prehistoric times, the *li* disappeared from the scene in the latter part of the Chou dynasty, somewhere near the beginning of the fifth century B.C., again after having passed through a number of modifications in form.

With the coming of the Bronze Age and the beginning of Shang, a whole new series of types came into being. The *kuei*, *lei*, *ku*, *chih*, *chüeh* and *chia* are known at the earliest Shang sites and may go back to the 16th century B.C.; and further new types like the *p'an*, *p'ou*, *tsun*, *yu*, *fang-i*, *huo*, *kuang* and *yü* came in some time after the move to An-yang about 1300. As will be seen later, some of these did not even survive the downfall of Shang while others lasted into the Chou dynasty for varying lengths of time. Under the Chou regime more new types appeared such as the *hsü*, *fu*, *tou*, *i* (pouring vessel), *chien*, *an* and *tui*; but the spark was gone and the general dullness of these latter forms betrays a lack of spirit and imagination that may be

^bA number of good lists of vessel types have been published. Yetts, *Eumorfopoulos* . . . pp. 43-51 describes 28 types in some detail; Hansford, *A glossary* . . . gives 30-odd types on pp. 4-9, and illustrates them with line drawings on pp. 89-92; Mizuno, *In-shū* . . . includes a folding chart illustrating many of the common shapes and showing the chronological development of each. Watson, *Ancient Chinese bronzes*, pp. 23-38, provides a very useful discussion of the development of 23 types and indicates the time when each was at the height of its popularity.

accounted for by the increasing confusion of the political scene as the Chou authority steadily weakened and by the attendant (or consequent?) change in the character of the religion and in the nature of the ceremonies it required.

As the vessel types and the variations of style within the types provide some of our basic clues to chronology, so the surface decorations give even more detailed information of the same kind. Again these matters are examined in detail under the discussions of the individual bronzes in the catalogue, but a few points may help to direct the reader's attention to the overall development. The earliest bronzes we now know, those from the sites of early Shang, are decorated in a manner best described as austere. In many cases the decor is limited to a single band or zone cast in very low relief; and even where more of the vessel is covered with design, the surface is always slick and smooth; and the emphasis is on the overall shape of the vessel. One of the characteristic features of the style is the simultaneous appearance of the same motifs executed in two quite different techniques producing two quite different visual effects. In one case, usually on the upper band, the design has evidently been incised in the clay of the mold so that it appears in thin raised lines in the final bronze; the other technique is just the opposite in that the raised part of the final design consists of flat bands broader than the lines that separate them. Intricate and elaborate though they be within themselves, the decorated areas remain flat; there are no protruding elements; the eyes of the *t'ao-t'ieh* are very slightly rounded; and flanges when present are minimal. None of this dominates or overburdens the surface or intrudes upon the smooth and elegant profile of the vessel. With the move to An-yang the spirit changed; and gradually more and more of the surface was covered; and the elements of decoration multiplied and elaborated almost beyond recognition.^c As time went on, the entire surface of the vessel was often covered with decoration leaving only occasional horizontal bands plain to serve as frames or boundaries between zones with various motifs. Frequently the entire background came to be filled with the squared spirals known as *lei-wen*, "thunder pattern"; variations of the "*t'ao-t'ieh*" proliferated; the varieties of "dragons" became more numerous and more complex; and certain birdlike forms also appeared in a variety of shapes. Along with these fantastic beasts, a number of perfectly recognizable species of birds and animals began to appear

^cLoehr, *The bronze styles . . .*, When this very useful paper was written, the author was able to say, "Shang sites earlier than An-yang, yielding the hoped for archaeological evidence, have not been uncovered thus far." Thirteen years later in the light of what we have learned from the earliest finds, it seems that Loehr's An-yang I and II may in fact be pre-An-yang, and that his III may be the first true An-yang style.

including owls, fish, serpents, tigers, water buffalo, elephants, hares, cicadas, etc. Animal masks recognizable as feline and bovine in inspiration began to be seen at intervals on the plain bands set on the shoulders of vessels and forming the tops of handles. As these latter motifs appeared, the vertical flanges began to increase in length, height and thickness; and for the first time high relief became a major factor in the overall design. Gradually various parts of the *t'ao-t'ieh*, eyebrows, horns, tusks, etc., and other features of the decoration began to take on higher and higher relief and even to protrude in the round until the whole vessel took on a rough, uneven and encrusted look.

This was the general trend at the time of the Chou conquest. At the same time it must be stressed that there was by no means a uniform "style of the period." On the contrary, as we understand it today, the closing decades of the Shang and the first few decades of Chou provide such a bewildering variety of decoration, ranging from relatively sparse ornamental bands on otherwise smooth surfaces to almost solid all-over coverings of *lei-wen* with either fairly slick and uninterrupted profiles or else bristling with protrusions of all kinds, that it has been impossible so far to bring order or system into this apparent stylistic chaos. So the situation is that while we can now recognize a number of bronzes of apparently very different aspects as "Late Shang or Early Chou," the problem of explaining the differences between them has still to be solved. In this short span from about 1050 to 1000 B.C., the best solution for the time being may be to speak, quite honestly, of the styles of the Shang-Chou transition.

Many instances of this curious situation could be cited, but an outstanding example occurs in our own collection where the *fang-i* Number 38, with its richly decorated surface encrusted with a great variety of motifs in high, low and medium relief, and its profile almost lost in the framework of heavily notched and segmented flanges, is related by the content of its inscription to the *huo* Number 41. The latter, again richly decorated all over, presents an entirely different aspect with its uniformly low relief only very faintly interrupted by the eyes of the several *t'ao-t'ieh* so that the striking thing about the piece is its shape rather than its decoration. This *huo* in turn is associated, by its inscription, which in this case is not merely related but identical, with a *yu* in the Hakutsuru Museum in Kobe.^d Quite unlike our *huo*, the *yu* is again heavily encrusted with relief in several levels, is dominated by heavy hooked

^dMizuno, *In-shū* . . . , pl. 103.

flanges, and in addition has boldly realistic rams' heads in the round terminating the handle. All three vessels and related members of the *Nieh-ling* and *Ch'en-ch'en* sets to which they belong have been assigned by epigraphers to the reign of King Ch'eng (1024–1005), and the *huo* and the *yu* must have been designed and cast in the same place at the same time.

Notwithstanding the apparent confusion in this transitional period, valiant efforts have been made to classify the minutiae; and it may be that studies such as those of Karlgren and Watson, though they are by no means in total harmony, point out a path which may ultimately lead to clearer understanding. In any case that time is still a long way off, and much work remains to be done.

As the Chou dynasty wore on, the picture became clearer; and the motifs that had appeared in such profusion and multiplied with such almost infinite variety began to take on more standard forms and eventually to fall into more easily recognizable categories. Dragons and birds and all the rest tended to become more stylized (if the phrase may be used in connection with a form that starts out as the stylization of an idea); and as time passed the stylization led to greater and greater abstraction. In about the 10th century, birds and dragons begin to appear in more bold and simple forms composed of broad, plain bands and then, very gradually, they start to disintegrate before our very eyes. Crests are no longer attached to the heads they adorn, and legs and tails become separated from their proper bodies until in the long run the birds and beasts lose their identities altogether; and the vessels, except for a monster mask here and there, or a head in the round atop a handle, are decorated with purely abstract patterns in broad flat bands, the style of Middle Chou.

The finest of the Middle Chou ceremonial vessels were decorated with a simplicity and strength not seen before or after this in the history of Chinese bronze casting. Perhaps because the designs were uncomplicated they were not always given the skill and attention that were customary in earlier times, and much of the output of the period was undeniably crude. But the best of Middle Chou has a strength and monumentality that set it quite apart.^e

From this turning point, the movement began, in a sense, to reverse. As we have already seen, the new vessel shapes of the second half of the dynasty

^eE.g. our *kuei* No. 77, the Nelson Gallery *kuei*, and the two *hu* belonging to Denis Cohen, Esq., and to the Art Institute of Chicago, the three latter illustrated by Watson, *Ancient Chinese bronzes*, pls. 48b, 52, 53. There are many other examples.

were uninspired at best. If anything saved them from oblivion, it was the decoration; but even then there was nothing comparable to what had gone before. In a general way the trend can be described in these terms: (a) the broad bands that made up the decor of Middle Chou began gradually to shrink in size and to take on an ever more animalistic character, often showing quite recognizable heads and rudimentary legs; (b) the interlocking became tighter, and the individual strips were, so to speak, cut up into small "dragons" which were arranged in horizontal bands and with hemispherical "eyes" where they intersect in forming the rectangular patterns (e.g. No. 86); (c) later, instead of intersecting loosely, the pattern became very tight; and the surfaces of the bands were covered with intaglio scrolls and fitted with appendages in slight relief to form the pattern known as "abundant hooks and volutes" (e.g. No. 97); and finally the bands became narrower, the rectangular "dragon" units became smaller and the divisions between horizontal zones disappeared until the overall effect was that of an abstract diaper pattern uniformly covering the surface of the vessel (e.g. the *fu* No. 107).

While these developments were taking place in the last two centuries or so of the Chou dynasty, an entirely new factor appeared on the scene. This was the so-called "hunting style" which introduced into the decorative scheme recognizable animals and men in attitudes suggestive of the chase. While much remains to be learned about the origin and introduction of this style, one or two hints are available. The inscriptions on two such vessels refer to events that took place in the northeast of China, and a fine "hunting *hu*" was among the bronzes excavated near T'ang-shan some 60 miles northeast of present day Tientsin. Under the circumstances it is hard to avoid the impression that the "hunting style" was an intrusion into the agrarian Chinese culture from the non-Chinese hunting cultures indigenous to the mountainous and wooded areas that lie beyond the Great Wall in what we used to call Manchuria. (See Nos. 95 and 98.)

This was the situation when the bronze-age civilization drew to a close. Bronze, as a metal, has of course continued in use; but with the unification of China by the Ch'in and the establishment by the Han of a strong and lasting central government based on Confucian principles, the "good old days" came to an end. Bronze vessels no longer played such an essential part, and from the Han dynasty onward, simple, utilitarian, though often nonetheless handsome, vessels were the rule; and the surface decoration, when present at all tended to be purely ornamental rather than charged with meaningful

magic. The last few vessels in the catalogue illustrate some aspects of the development that was to take place along those lines.

TERMINOLOGY

In the descriptions of the bronzes a number of the standard technical terms are used either in romanization or in translation of the original Chinese, and it may be in order to add a few notes on the terminology of bronze decoration in general and on our use of that terminology in this book. How the motifs on the bronzes were described by those whose minds conceived them and whose hands first delineated them we have no way of knowing. Some of the names of the vessel-types go back to inscriptions on the vessels themselves;^f but many of them, and apparently most of the names of the motifs of decoration, originated with the compilers of the Sung and later catalogues who used them, it must be noted, with an inconsistency and vagueness that are deeply frustrating. Since the early days of Chinese bronze studies in the West, students have been faced with the problems of interpreting those terms.

Various approaches have been used. Some have treated the motifs in a more or less straightforward way simply translating the terms as they appear under the respective characters in the standard Chinese-English dictionaries, or else just using them in romanized form. Others have gone to much trouble trying to construct or reconstruct whole theories about the spiritual and psychological life of ancient China on the basis of their interpretation of the motifs. In so doing, they have failed to realize that the surviving works on which we base our knowledge of early Chinese thought were not only written centuries after the bronzes were made, but have come down to us in imperfect form, edited and re-edited centuries after they were written, and can hardly have any relation at all to the thinking of Shang and early Chou. Excursions into the beliefs and practices of the primitive peoples of Asia and Oceania never fail to make good reading; whether they shed any light on the religious life of the early Chinese remains to be seen.^g Still another approach has been taken by those who have sought to classify and categorize the motifs

^fHayashi, *In-shū* . . . lists some 30 type names as appearing in the inscriptions on vessels and implements.

^gCarl Hentze was a pioneer in this field, and his *Bronzegerät* . . . sums up more than 20 years of research in the field of folklore which he feels was the inspiration of much of the bronze decoration. Waterbury, *Early Chinese symbols* . . . leans heavily on Hentze's early work; and Ackerman, *Ritual bronzes* . . ., most comprehensive of all in her outlook, brings everyone from the Phoenicians to the Navajo Indians into her search for explanations.

and to seek a precise definition for each variation of form and detail.^h

In the present volume we have followed generally accepted views if such a thing can be said in a field where there is so much difference of opinion; and we have tried to keep exotic terms to a minimum. One or two words of explanation may not be amiss, however, in the case of what may be the four most frequently used terms. The word “dragon” inevitably causes confusion because the vision it conjures up is that of the great scaly reptilian monster with or without wings which flies through the skies or swims through the seas, exercises control over the rainfall, and is graphically depicted in painting, carving, and casting from the Han dynasty onward. The dragon of the bronze age bears no resemblance to this familiar form; and we don’t even know that the concept existed in the mind of the Chinese of that time. What these beasts meant to them, or if they even called them *lung* as their descendants called the raingiver, we do not know. For our purposes here it is simply a convenient term for any unreal, imaginary, or fabulous beast that defies zoological identification. It is invariably seen in profile and may or may not have horns, a crest, feet, wings, etc. The Chinese term *k’uei* which is defined as a one-legged monster, is often prefixed to the word “dragon” and usually refers to clearly defined beasts (regardless of the number of legs) that appear singly or in pairs, or even in continuous parades, around vessels in bands of varying widths. No attempt is made to distinguish between ordinary dragons and *k’uei* dragons, and there are many marginal types; both terms are used loosely.

Perhaps the most characteristic motif of bronze decor is the so-called *t’ao-t’ieh*, a term that has always proved troublesomeⁱ and that has never failed to seduce students into all sorts of complex speculations. Here we use it in the broadest sense to describe a full-face, mask-like design that is represented flat or in low relief on the surface of the bronze. Its most striking features are the prominent staring eyes, the eyebrows and/or horns that may be simple or elaborate, and the fact that it usually lacks a lower jaw. Without going into the almost infinite number of variations that may occur (almost no two are identical), it may be added that the mask may be integral in form as on the base of Number 63, or made up of two dragons confronted across a flange as seen on the body of the same vessel.

^hKarlgren, *Yin and Chou . . .*; and *A grammar . . .*; and Consten, *A terminology . . .* are the most methodical and thoroughgoing studies using this approach.

ⁱConsten, *op. cit.* gives a useful resumé of the many interpretations of this enigmatic term.

The third term constantly used in romanization is *lei-wen* which means “thunder pattern” because of some remote, or even fancied, resemblance that it bears to archaic script forms of the character for thunder. In practice, as a motif of design on the bronzes, this resemblance is tenuous at best; and the rows of spiral patterns, either squared or round, have equally been called *yün-wen* (cloud patterns) by the Sung cataloguers with no apparent effort to distinguish between the two forms. Purists have advocated the abolition of the term from the vocabulary of bronze decoration;^j but it is so embodied in the existing literature, and has become so familiar to all who know Chinese bronzes that no useful purpose would be served by its sudden withdrawal. We continue to use it in our text along with such English alternatives as “squared spirals” and “spiral filling” to describe the intricate and elegant background against which many of the bolder designs are set. For the rest, the terminology is pretty orthodox in keeping with the repertories established and catalogued by Karlgren and Consten in the works already cited.

CHRONOLOGY

It is well known that two sets of dates exist for all Chinese reigns before 841 B.C. and there is no need to review all the arguments on both sides of the question.^k In the discussions that follow, we have adopted the following system:

Hsia	A legendary period probably ending in the 16th century B.C.
Shang (also called Yin)	ca. 1523–1027 B.C.
P’an Keng moves capital to Yin in 1300	
Chou (see details on next page)	1027– 256 B.C.
After 256 B.C. the Ch’in State controlled most of China. The King proclaimed himself “Emperor” in 221.	
Ch’in	221– 207 B.C.
Former (Western) Han	207 B.C. – 8 A.D.
Hsin (the interregnum of Wang Mang)	9– 25 A.D.

^jKarlgren, *A grammar . . .*, p. 1.

^kLoehr, *Relics of ancient China*, pp. 58–62, gives a useful discussion of the conflicting views and a comparative table of the relevant dates.

Later (Eastern) Han	25– 220
The Three Kingdoms	220– 265
Wei	220–265 North China
Shu Han	221–264 Southwest China
Wu	222–265 Southeast China
Western Chin	265– 316
Eastern Chin	317– 420
Six Dynasties (includes Wu and Eastern Chin)	220– 589
Sui	589– 618
T'ang	618– 906
The Five Dynasties	906– 960
Northern Sung	960–1127
Southern Sung	1127–1279
Yüan	1260–1368
Ming	1368–1644
Ch'ing	1644–1912

The Chou dynasty

A major division in the dynasty occurred in 771 B.C. when the ruler moved his capital from near Ch'ang-an in Shensi to a site near Lo-yang some 330 km. to the east in Honan. The two periods are loosely known as Western Chou and Eastern Chou respectively. For the Eastern Chou the Chinese had two much more picturesque names:

Period of the Spring and Autumn Annals

(Ch'un-ch'iu)

772– 481 B.C.

Period of the Warring States (Chan-kuo)

481– 221 B.C.

The Kings of Western Chou were:

Wu	1027–1025	I	907–898
Ch'eng	1024–1005	Hsiao	897–888
K'ang	1004– 967	I	887–858
Chao	966– 948	Li	857–828
Mu	947– 928	Hsüan	827–782
Kung	927– 908	Yu	781–771

In Eastern Chou the central power deteriorated to such an extent that the Kings were mere figureheads, and the Dukes of the various states ruled almost independently. When names are found at all in bronze inscriptions of

the latter half of Chou, they are likely to be the names of Dukes rather than those of the Chou Kings.

P'ing	770-720	Ching	544-520
Huan	719-697	Ching	519-476
Chuang	696-682	Yüan	475-469
Hsi	681-677	Chen Ting	468-441
Hui	676-652	K'ao	440-426
Hsiang	651-619	Wei Ling	425-402
Ch'ing	618-613	An	401-376
K'uang	612-607	Lieh	375-369
Ting	606-586	Hsien	368-321
Chien	585-571	Shen Ching	320-315
Ling	570-545	Nan	314-256

THE CATALOGUE

P'ou

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 17.1 cm. (6 $\frac{3}{4}$ in.)

Width, 24.2 cm. (9 $\frac{1}{2}$ in.)

Weight, 2.49 kg. (5 lbs., 8 oz.)

Accession number 09.334

The squat vessel with large mouth and foot is decorated in low relief. Below a plain lip and neck is a shoulder band of embryonic monocular dragons amid *lei-wen* spirals. The main design consists of *lei-wen* arranged to form quadrangular lozenges each centered on a stud. The over-all conception of the design is sophisticated, but the workmanship is essentially crude. The surface is covered with a smooth, olive-green patina, and no attempt has been made to conceal the three vertical mold-marks by working the cold surface of the bronze.

Mr. Freer bought this piece in 1909 from Count Tanaka through Samurai Shokai of Yokohama. After studying it, he wrote the following comments:

“Supposed to be late Chou or early Han. Suspicious in every way and recolored, but useful for study and worthy of thoughtful attention. Compare the decorations in lower band, nipple design in lozenge-shaped spaces, with illustrations on page 48, a Shang jar, of Thoms’ *Ancient Chinese Vases of the Shang Dynasty*. Examine refinement of certain areas of upper band of decoration and look carefully into eroded spaces on rim and on edge of foot; note also pattern lines.”



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NUMBER ONE

STYLE AND CHRONOLOGY

Vessels of this shape, usually called *p'ou*, or sometimes *lei*, might seem from the simplicity of their design and their evident derivation from ceramic prototypes to be among the earliest of Shang vessel types. Apparently, however, they were preceded by the *ku*, *chüeh*, and other forms. The earliest extant *p'ou* seem to belong to the middle An-yang period, around the 12th century. In the combination of geometric decor on the main area of the body with a band of monocular dragons on the shoulder, the present example is related in design to Shang white pottery vessels like the well-known *lei* in our collection (39.42). The same combination appears on a bronze *p'ou* found at An-yang, a simpler and rounder vessel than ours and probably somewhat earlier.¹

On another *p'ou* of less squat shape but related design in the Nara Museum,² fully formed, clearly recognizable tigers take the place of the inchoate creatures of the shoulder zone of our vessel, suggesting that the latter, since they co-exist with motifs of a more representational character, are not so primitive as one might at first think. Closer to ours in shape and decor, but far more refined in execution, is the one in the Sumitomo Collection.³ On this, however, both the monoculi in the shoulder band and the angular design on the body are set against fine *lei-wen* grounds. The relative crudeness of our *p'ou*, in both design and casting, is more likely attributable to provincial manufacture, or simply to a less accomplished workshop, than to earlier date. Other vessels of the type exhibit a similar crudeness; e.g., one in the Berlin Museum.⁴

TECHNICAL OBSERVATIONS

The object was cast in one piece, and the three equally spaced vertical lines running from top to bottom on the sides appear to be mold marks; but this is not certain. The decor elements show poor register at the join lines as if the pattern of each panel had been applied to the mold mech-

¹ Li Chi, *The beginnings . . .*, pl. XXXVI.

² Umehara, *SKS*, I/12b.

³ Sumitomo, *Sen-oku . . .*, II/52.

⁴ Umehara, *op. cit.*, II/125.

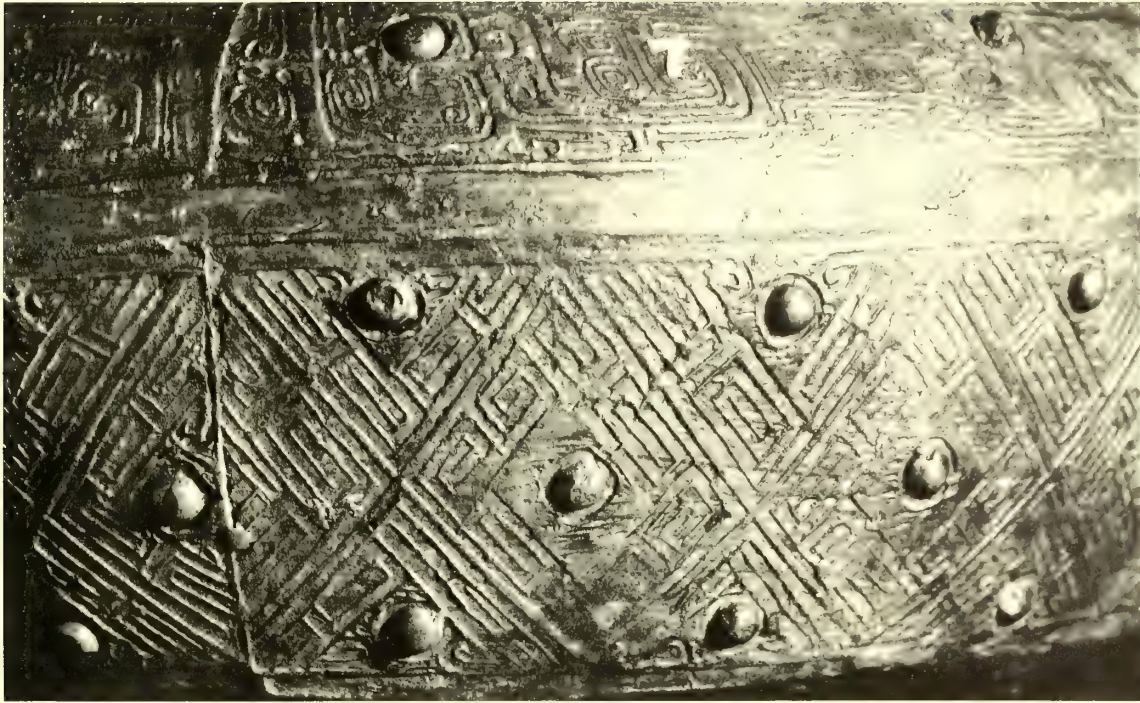


FIGURE 1

anically (*fig. 1*). The ragged edges of the lines of the design suggest that the plastic medium into which they were pressed may have been soft, like wet clay. Moreover, within each of the three segments of decor, there are faint vertical lines about equally spaced which are difficult to explain; but they may be joins in the wood or other material from which the model was made. No decor pattern of this character has been observed on any other bronze in the collection. The bottom underside is plain, and no chaplets have been observed.

The patination is peculiar although it appears to be natural and authentic. Beneath the thin green surface is a whitish layer that resembles plaster, but X-ray diffraction analysis shows that it is mainly tin oxide. It is stained blue in places, but this is caused by copper compounds, not artificial dye or pigment.

The vessel has been repaired. A portion of the decor on the shoulder about one-third around is crudely drawn in a kind of plaster which is colored with Paris green pigment. The interior of this unmatching surface

NUMBER ONE

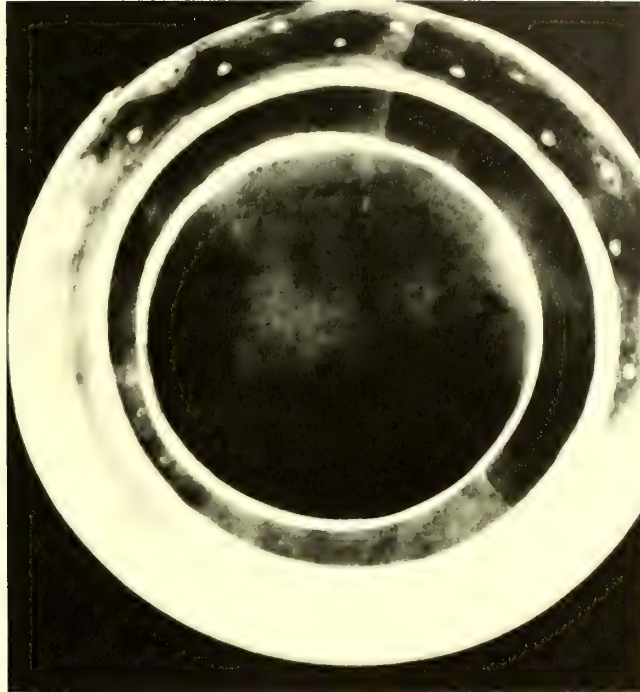
is also encrusted with Paris green-stained, plaster-like material which fluoresces pinkish in ultraviolet light; but no evidence of metal replacement in the vessel wall was found. It is probable that the original tin-oxide corrosion product in this area had fallen away, and the repairs were made simply to hide the losses. On the inside of the foot what was probably a hole is patched with thin strips of copper covered over with green-stained plaster.

Composition: Samples taken from edge of foot.

Wet chemical analysis: Cu 71.7%; Sn 12.2; Pb 13.9; Total 97.8.

Additional elements estimated by emission spectrometry: Ag 0.02%;

Fe 0.02; Co < 0.001; Ni 0.001; Si 0.002.



A radiograph of the bottom of the vessel. This shows clearly the three mold joins and a large area of repair (near top of radiograph)

P'ou

Shang or Early Chou dynasty (12th–11th century B.C.)

Inscription of 62 characters inside bottom

Height, 37.2 cm. ($14\frac{5}{8}$ in.)

Width, 32.1 cm. ($12\frac{5}{8}$ in.)

Weight, 8.99 kg. (19 lbs., 13 oz.)

Accession number 13.30

The large covered vessel is divided vertically into six segments by thin flanges on the lid, body and foot. The two upper sets of flanges look like processions of birds in silhouette; those on the base have simple notches. On the lid is a tall stem topped by a hollow finial in the shape of a bud with a loose ball inside making it a rattle. Decoration in relief consists of upside-down *t'ao-t'ieh* masks on the lid and three pairs of confronted *k'uei* dragons on the shoulder over the major *t'ao-t'ieh* masks on the belly. Around the base are three elongated *t'ao-t'ieh* made up of confronted stylized dragons. Much of the surface has a smooth, dark green patina interrupted by areas of azurite and malachite corrosion. The quality of the casting is fine, but the vessel is broken and damaged in a number of places.

Mr. Freer's original comment reads:

“Very important and thoroughly representative of the best designing and casting during the Chou dynasty. From the collection of late Prince Kung, who formerly owned also S.I. 389, 13.21.”



NUMBER TWO (13.30)

NUMBER TWO

STYLE AND CHRONOLOGY

Several *p'ou* vessels are known which appear to be of late Shang date similar except for the hooked flanges.⁵ The shape derives from the squatter, lidless *p'ou* of which examples are discussed in connection with Number One. A link between these and the later variety, with relief decor and flanges producing an irregular silhouette, may be seen in a piece in the Seligman Collection,⁶ with its high relief horned-animal heads on the shoulder and rudimentary flanges. The hooked flanges here are not of the type associated with typical Early Chou vessels, but have more in common with those that are found, although unfrequently, on Shang vessels (cf. discussion of No. 4). However, the transformation of these flanges into the forms of birds, with the hooks serving as beaks and tails, is an uncommon feature, as is the combination of dragons with a modified form of the "whorl circle" on the shoulder. Finally, while the rattle nob on the lid is reminiscent of rattles on horse fittings, pole finials and other bronze objects of Shang date, its occurrence on a vessel lid and its lotus-like shape are uncommon. A vessel identical in design is in the Sumitomo Collection, Kyoto.⁷

TECHNICAL OBSERVATIONS

Mold marks and webs show plainly along the six flanges of both vessel and lid which indicate they were each cast in a three-piece (six-division) mold assembly with true joins vertically in line with the three rectangular holes at top of the foot. The bottom underside is plain. Along the edge of the foot is a low ridge which appears to be a join line formed by juncture of the upper core and outer mold. Although traces of such join lines are often seen on the foot rim of vessels like this, the lines seen here are unusually prominent. Three pairs of chaplets are located symmetrically around the neck and two within the decor area. Two have fallen out. The edges of the hole left by one lost chaplet show evidence of spill-over

⁵ Mizuno, *In-shū* . . . , color plate 8, Umehara, *SKS*, II/127, University Museum, Philadelphia, and 128, Metropolitan Museum, New York.

⁶ Watson, *Ancient Chinese bronzes*, plate 3b.

⁷ Sumitomo, *Senoku*, no. 51.

metal on the inside, indicating that the spacers were in place when the vessel metal was poured. Further chaplets are similarly disposed under the vessel bulge. The chaplets are irregular in size and shape; some are triangular, others square, and they range in size from 0.5 cm. to 1.3 cm. in the largest dimension. In the upper band the edges of the chaplets are ill-concealed and surrounded by a gap in the metal; but under the bulge the edges are so perfectly flush that they can only be detected by their pale green color in contrast to the darker green surrounding them. The edges of one of the chaplets in the lower band and one in the upper band were scraped down to bare metal, and in both instances no difference in color between chaplet and matrix metal was observed. Both are apparently made from the same yellowish alloy. Analysis of one of the chaplets from the upper plain area shows: Cu 83.0%; Sn 15.7; Pb none; Total 98.7. This confirms the visual observation that the chaplets and matrix metal are closely similar in composition.

The presence of a seam at the bottom of the stem supporting the rattle on top of the lid shows it was separately cast and the lid metal cast onto it (*fig. 2*). The stem juts out slightly beneath the under surface of the lid.



FIGURE 2

NUMBER TWO

The casting is poor, and there are several large flaws in the side wall of the vessel which were filled and repaired at time of fabrication. These repair inserts have a smooth patina like the body metal, but the tone is a little lighter. Some of the inserts in the decor area have had decor elements cut into them to maintain the continuity of design (*fig. 3*).

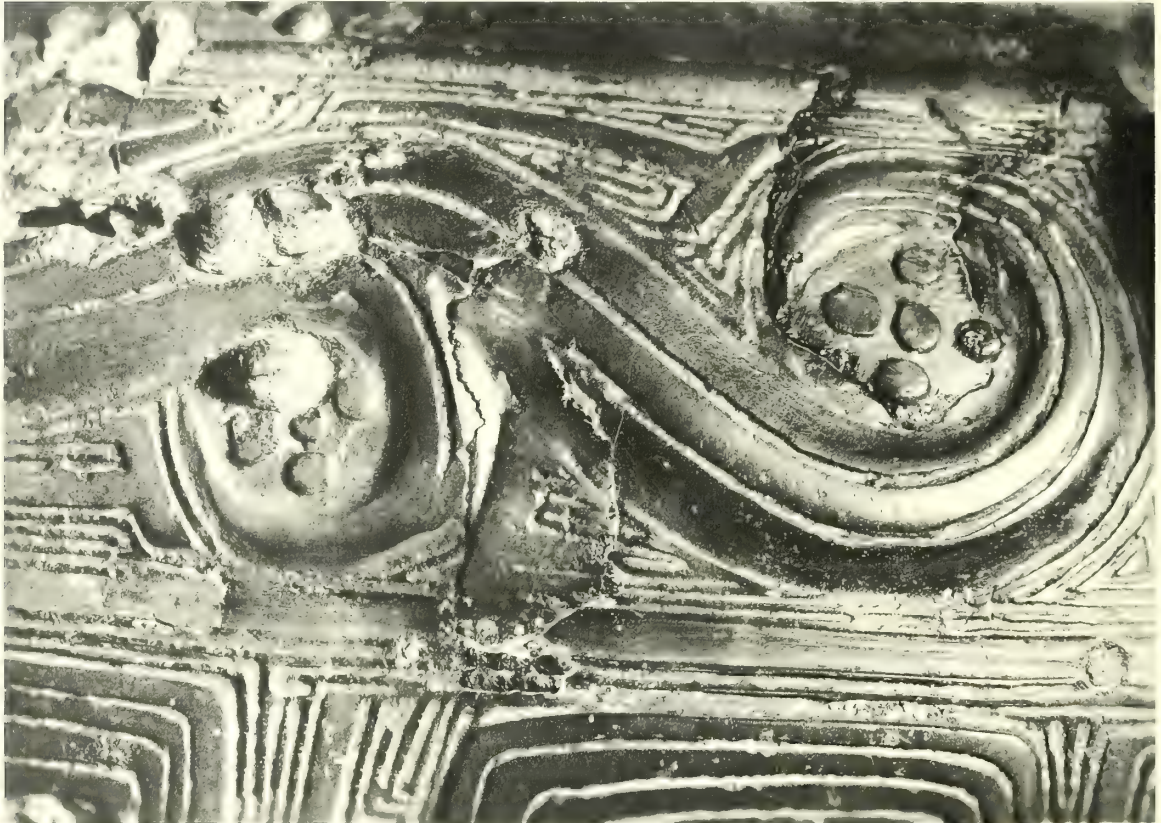


FIGURE 3

Sections of the rim have broken away and extensive repairs have been made with soft solder; paint and luting materials have been used to hide the mends. One section of the rim is entirely missing. Two small holes on the inside of the foot are filled with soft solder.

The corrosion products are of special interest. An area on one side of the upper bulbous middle carries a number of irregular conical prominences looking almost like barnacles which seem to have been local centers of active corrosion. The sides of the cones are horizontally ridged

or stepped as if their growth was intermittent. They are composed mostly of copper carbonate and appear to be free from chloride ion. Conical prominences like these are often seen on Chinese bronze mirrors and other bronze types. Elsewhere on the vessel are blue crystalline crusts of azurite, but most of the surface is covered with a smooth, enamel-like tin-oxide patina stained dark green by copper salts. At low magnifications ghosts of the dendritic cast structure of the original metal can be seen in the thick tin-oxide crust. Much of the surface of this vessel serves as an excellent example of pseudomorphic replacement of copper by tin oxide.

Because of the broken edge, this is one of the few vessels in the collection from which a specimen of metal could be taken and prepared for metallographic study. Microscopic examination of the mounted and polished specimen after etching shows that the metal has a typical dendritic structure characteristic of cast high-tin bronze. The specimen is quite exceptional because there are no rounded inclusions of lead which confirms the absence of lead in the chemical analysis (*vide infra*). At the edge corrosion is not selective for any particular phase but has advanced towards the center with a straight line front. The copper that was leached out in surface corrosion has been almost replaced pseudomorphically by tin oxide.

Some earthy residues adhere to the insides of both the vessel and the foot. If originally buried, the piece has probably been above ground for a long time.

The long inscription on the bottom appears to have been incised. Though the inside bottom of the vessel is heavily corroded and has been partially cleaned by chipping, the corrosion crusts at no point obscure the inscription. The characters show chatter marks and interior ridges (double-cutting) in the grooves, and the ends of the grooves are ploughed up as if a chisel had been used (*fig. 4*). A radiograph revealed that two chaplets are intersected by characters (for instance, the fifth character in the last column), and the characters appear more faintly than usual in the radiograph, which leads to the conclusion that they were cut in the corroded surface of the metal. While some of these features might be

NUMBER TWO

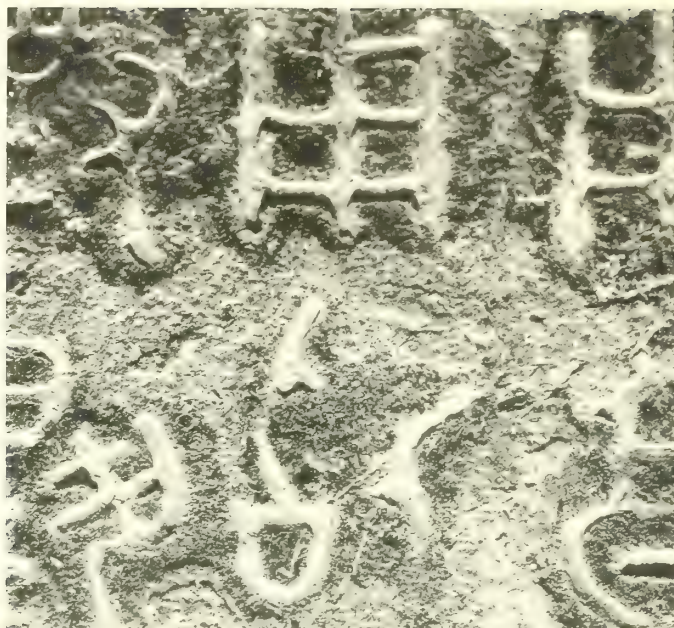


FIGURE 4

present in a cast inscription which had been cleaned after long burial, their concurrence here suggests that this inscription is incised.

Composition: Sample taken from rim.

Wet chemical analysis: Cu 81.9%; Sn 17.8; Total 99.7.

Additional elements estimated by emission spectrometry: Pb 0.3%;
Ag 0.03; Fe 0.2; Co 0.001; Ni 0.002; As < 0.07; Mg < 0.001; Si < 0.001.

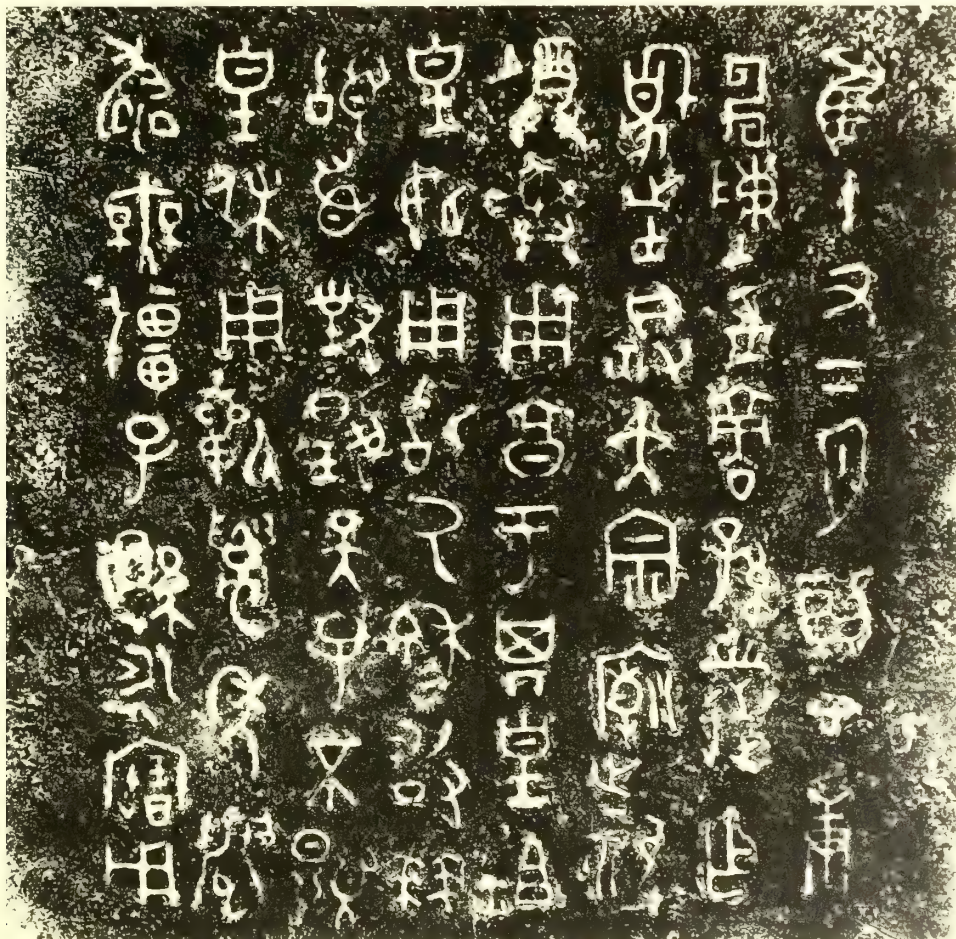
INSCRIPTION

The 62 characters of this inscription are roughly and in several cases incorrectly written. They may be translated as follows: the highly literal rendering indicates faulty or questionable aspects of the composition:

1. In the 12th month, the *ch'en*-phenomenon (occurring) on the day *keng*-
2. *shen* (the 57th day of the cycle), Ch'en-X-(=a title?)-Shih's grandson, Y. made.
3. on behalf of. go. . . . (=sacrifice?) Grand Ancestral Temple's sacrifices

4. (this) honored *i* to be employed in offerings to his august grand-
father
5. and august grandmother; to be employed in (=verb) his
majestic. Presume to make obeisance and
6. bow low the head to respond and extol and Son of Heaven's great,
illustrious,
7. august grace. Therefore pray for a myriad years ripe
8. old age without limit, son and grandson (=descendants) forever
value and employ (it).

Upon the basis of the ductus of the script alone, there remains little question as to the fraudulent nature of the inscription. Comparison with the calligraphy of several well-known, forged inscriptions of similar style illustrates the point.



P'an

Shang dynasty (late An-yang, 12th–11th century B.C.)

No inscription

Height, 12.3 cm. ($4\frac{7}{8}$ in.)Width, 32.4 cm. ($12\frac{3}{4}$ in.)

Weight, 5.30 kg. (11 lbs., 11 oz.)

Accession number 56.26

The broad basin of the vessel rests on a high circular foot around which is a procession of six *k'uei* dragons heading to the right. The body is decorated with three pairs of confronted dragons in a horizontal band below which are pendant blades. The main design inside is a single large dragon coiled completely around the vessel with its head in the center. The body is decorated with diamond lozenges and the head with bottle horns. Small dragon forms fill the rest of the available space inside the coil. Just below the lip is a band consisting of a bird, a fish, and a dragon repeated three times and moving around to the left. All the decoration is in fine sharp intaglio with only the eyes of the main dragon in slight relief. The surface is covered with a pale greenish-gray patina which shows areas of malachite and cuprite encrustation. A small rectangle with concave sides and two pairs of crossed strokes above it appears on the dragon's forehead and may or may not be an inscription (*fig. 5*).



INSIDE



NUMBER THREE (56.26)

NUMBER THREE

STYLE AND CHRONOLOGY

The *p'an* of this shape belongs generally to the middle and later An-yang period; an example with simple geometric pattern was found at An-yang,⁸ and others can be dated by their decor to the latter part of the Shang dynasty.⁹ Versions of the design persist into Chou, and *p'an* with coiled serpents filling the interior surfaces were still current in Middle Chou¹⁰ and as late as the seventh century, the likely date of the tombs at Shang-ts'un-ling, where one of them was found.¹¹

The closest relatives to our *p'an*, however, date from the Shang period. One of the earliest, perhaps, is a vessel reportedly from An-yang, which is the simplest in design, and closest in shape to pottery vessel.¹² A tortoise, rather than a serpent, occupies the main area of the interior. It is encircled by a procession of bird, tiger, and fish, in the same order as here but moving clockwise, in the zone just below the rim of the vessel. Similar in shape but more elaborate in decor is another *p'an* found at An-yang which has a curled serpent in the center and the same series of creatures surrounding it.¹³ A further elaboration is seen in a *p'an* in the British Museum, on which small representations of tigers, fish, snakes, and a dragon surround the head of the large serpent.¹⁴ The bird, tiger, and fish again encircle this main motif, but now move in a counter-clockwise direction. In these features the design agrees most closely with our *p'an*, on which small dragon forms occupy the spaces around the horns and ears of the serpent, and the animals around the rim move counter-clockwise. In shape, however, the British Museum vessel differs in having a higher foot and shallower bowl. Another closely related *p'an* is in the Brundage Collection (B.60 B.89).

⁸ Li Chi, *The beginnings . . .*, Pl. IXa.

⁹ The vessel of which a line drawing is placed by Mizuno under "Late Anyang" in the typological chart accompanying his *In shū . . .* is very similar in shape.

¹⁰ E.g. Mizuno, *In shū . . .*, Pl. 121, from Lo-yang.

¹¹ *Shang-ts'un-ling . . .*, Pl. XVIII.

¹² Huang, *Yeh-chung . . .*, II, A, 34. It corresponds closely, both in shape and in the absence of any design other than the simplest relief "bowstring" pattern on the exterior, to the *p'an* appearing under "Early An-yang" in Mizuno's typological chart.

¹³ Huang, *op. cit.*, III, B, 6. This is also published in Umehara, *SKS/J*, II/84, as "ExColl. of T. Ota, Kyoto"; rubbing in Jung Keng, *Shang Chou . . .*, I, p. 112.

¹⁴ Watson, *Ancient Chinese bronzes*, Pl. 26a-b; rubbing in Jung, *op. cit.*, p. 113.

Ours is the only one of these with *lei-wen* in its decor, and even here it is used only sparingly, on the head of the serpent and in the more conventional designs of the exterior. The remainder of the design, executed in intaglio, and unusually pictorial in character for the Shang dynasty, reinforces the impression made by the shape, that the early *p'an* may have begun as simple translations into bronze of footed bowls made of pottery or wood with designs engraved in the surfaces of those materials.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece, apparently in a three-piece mold with true joins coinciding with the three openings in the foot just below the vessel bottom. The three low flanges midway between the true joins show no evidence of pattern join, and in the leaf blade decor just below the flanges there is no interruption in the decor elements. The underside of the vessel is featureless. There is evidence of four chaplets in and around the head of the coiled dragon.



FIGURE 5

NUMBER THREE

The pale greenish, powdery patina overlying a nearly continuous layer of reddish cuprite is spread rather uniformly over interior and exterior. Fossae of the design are lined with cuprite, and covering much of this cuprite is a thin layer of black, which is remarkably lustrous and in places gives a false impression of being paint. On the vessel's underside this black covers extensive areas of the undecorated surface which suggests that originally the whole surface was black. X-ray diffraction analysis and chemical behavior indicate that the black is mostly cuprite, which is ordinarily red in color. Blackness may be caused by admixture with small amounts of carbon or may result from the presence of black cupric oxide, although no direct evidence for those substances was obtained by chemical or physical tests. X-ray diffraction analysis of the powdery, pale green patina gives a pattern whose lines correspond mainly to the mineral cassiterite (stannic oxide). If crusty copper minerals, e.g., azurite and malachite, were originally present, they have been mostly cleaned off. A distinguishing characteristic of the object is a flattened area 7 to 8 cm. long on the side of the foot, which seems to have resulted from a hard blow or fall in antiquity. This malleability of the alloy testifies to the high copper and low tin content shown by the chemical analysis. There are no repairs and no evidence of touch-up.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 87.2%; Sn 9.9; Pb 0.4; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.4; Co 0.01; Ni 0.01; As < 0.1; Bi < 0.03; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.02.



Detail of decor inside rim

Hu

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 17.5 cm. ($6\frac{7}{8}$ in.)

Width, 11.7 cm. ($4\frac{5}{8}$ in.)

Weight, 0.94 kg. (2 lbs., 1 oz.)

Accession number 49.5

A small covered vessel, round in section, this *hu* is somewhat atypical in form. The surface is covered all over with very sharply cast designs arranged in five main horizontal bands. The cover and neck each have three vertical hooked flanges. Surmounting the cover is a mushroom-shaped knob decorated with whorl circles which are repeated around the base of the stem; and between the flanges are three *t'ao-t'ieh* facing upward. On the neck three more masks are centered on the flanges. The designs described thus far are executed in broad flat surfaces; below this the lines are much finer. On the shoulder is a band of six horizontal monocoli between borders of small circles. On the belly an overall *lei-wen* pattern is arranged in a rectangular scheme within a network of interlocking T's; a single band of *lei-wen* surrounds the foot. One side of the vessel has been damaged and repaired. The patina is a smooth, even gray-green on the raised surfaces, and the casting is extremely fine.



NUMBER FOUR (49.5)

NUMBER FOUR

STYLE AND CHRONOLOGY

The body of this vessel is covered with a geometric design of extraordinary precision and clarity. A similar combination of purely abstract surface pattern with motifs of a minimal zoöomorphic nature is seen in much cruder form on our *p'ou* (No. 1), and on many other bronzes, as well as on white pottery vessels.¹⁵ In bronzes, it is most often associated with shapes that seem derived from ceramic vessels, and such a derivation is suggested here. A slightly larger *hu* in the Fogg Art Museum, similar in design but with upper surface bare and lacking flanges, would appear to be even closer to the presumed ceramic model.¹⁶ A ceramic parallel may be seen, at least in shape, in a reconstruction of a white pottery *hu* published by Umehara.¹⁷

The designs on the neck and lid, lacking any separation between the motifs proper and the usual ground of spiral fillings, are of a variety known from some of the earlier vessels of the An-yang period,¹⁸ and presumably originated in a carving or engraving technique. They survive in a few later vessels such as this but disappear by late An-yang. The hooked flanges are not of the thicker and more regular kind, commonly found on Early Chou vessels (such as, the *fang-i*, No. 38) but are rather of the Shang dynasty variety seen also on a *fang-i* from Hsiao-t'un and a *ting* reportedly also from An-yang,¹⁹ in which the hooks similarly alternate with simple rectangular projections in irregular spacing to produce a complex outline. That this pattern can evolve from the dissolution of a human profile has been shown by Li Chi, in connection with a group of hairpin ornaments.²⁰ It would be a mistake, however, to conclude that it is always to be interpreted so; here it is probably quite devoid of representational significance.

Another covered *hu* of similar shape, but lacking flanges and with a

¹⁵ Umehara, *Kanan anyō . . .*, Pl. XII, XIII, XV, XXII. For a similar pattern of interlocked T's, see Pl. XX, a rubbing of a shard.

¹⁶ Umehara, *In-kyō*, Pl. 101, No. 2.

¹⁷ *Op. cit.*, Pl. 17, No. 5, Muta Collection. The reconstruction is based on the fragment published in *Yeh-chung p'ien-yü*, III/B/24b, and Umehara, *Kanan anyō . . .*, Pl. XVII.

¹⁸ I.e. those of Loehr's "Second Style"; see Loehr, *The bronze styles . . .*, figs. 5-8.

¹⁹ Li Chi, *The beginnings . . .*, Pl. VI right, and Mizuno, *In shū . . .*, color Pl. 6.

²⁰ "Examples of pattern dissolution . . .," Fig. 3.

design covering the entire surface instead of being divided into zones, is in the Von Lochow Collection.²¹ A small cylindrical covered vessel in the Metropolitan Museum is said to have come from the same tomb at An-yang as the present *hu*.²²

TECHNICAL OBSERVATIONS

The three vertical mold marks midway between the flanges indicate the vessel was cast in a three-piece mold. There are no breaks at all in the pattern in the line of the flanges. An especially interesting feature of this vessel is that all the flanges are precast; they appear to have been placed in the mold and the vessel cast to them. In the lid one of the flanges actually pierces the inner surface, with the lid metal partially covering it (*fig. 6*). The flanges themselves were apparently cast in two-piece molds with the join lines located at one side instead of along the center of the

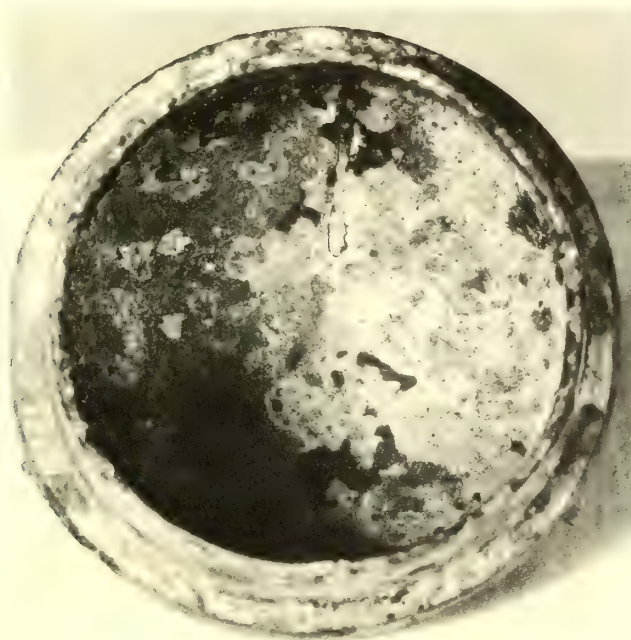


FIGURE 6

²¹ Von Lochow vol. II, Va-b, and Mizuno *op. cit.*, Pl. 25a.

²² Lippe, "A gift . . .," p. 97, illus., and p. 101.

NUMBER FOUR

flange faces. The underside within the foot is plain. There is no evidence of chaplets in either vessel or lid.

The surface and the finely modeled sunken decor is uniformly covered with smooth gray-green tin-oxide patina. X-rays reveal (see also Vol. 2, Chapter VII) that an area on one side of the vessel has been severely damaged. Several fragments have been put in place and secured with soft solder. A portion of the wide decor band about the middle is lost but has been replaced with a lead insert carved and modeled to match quite perfectly the surrounding decor. Lead solder fills a crack that extends upwards into the neck just short of the rim. An upper section of one flange has been broken off and reattached. All the repaired areas are concealed with a bluish-green paint difficult to remove with strong organic solvents. There are also touches of paint on the cover but no evidence of repairs.

Composition: Sample taken from outside rim of cover.

Wet chemical analysis: Cu 73.7%; Sn 12.4; Pb 12.1; Total 98.2.

Additional elements estimated by emission spectrometry: Ag 0.02%; Fe 0.02; Co < 0.001; Sb 0.005; Al < 0.001; Mg < 0.001; Si 0.03.



Detail of decor

Hu

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 38.3 cm. (15 $\frac{1}{8}$ in.)

Width, 27.3 cm. (10 $\frac{3}{4}$ in.)

Weight, 10.01 kg. (22 lbs., 1 oz.)

Accession number 48.1

This *hu* is ovoid in section and the shape was standard from early times until the appearance of major changes in the type sometime in the latter part of the Chou dynasty. The decoration, cast in low relief, is arranged in six horizontal bands. Three of these, the top, the third, and the fifth, have bold *t'ao-t'iehs* masks with bulging eyes centered on low sharp flanges; but the pairs of confronted dragons that make up the *t'ao-t'iehs* are different in each band, and each is backed up by a different beast: bottle-horned *k'uei* on top, crested bird with upturned tail on the third, and larger crested bird with downturned tail on the fifth. The second band has a continuous line of small proboscis dragons all facing to the left and interrupted by the two tube-shaped handles with bovine heads at the sides. The fourth band has four pairs of very elongated, confronted dragons forming four *t'ao-t'iehs* without flanges. A band of four monocular dragons moves to the left around the high foot. Much of the silvery gray metal shows through the corroded areas, and the casting is extremely fine.



NUMBER FIVE (48.1)

NUMBER FIVE

STYLE AND CHRONOLOGY

This *hu* is one of several similar vessels, all said to have been found at An-yang.²³ They differ in the forms of the *t'ao-t'ieh* and dragons that fill the various zones, but agree in basic design, except that the arrangement of the monoculi in the second zone from the top on our vessel, with all the creatures "facing" leftward, is not paralleled on the others, where they are paired or confronting throughout in the usual manner. In Loehr's theory of the development of bronze styles in the Shang period, all these *hu* vessels would belong to his "Fourth Style" in which coherent *t'ao-t'ieh* and other motifs are clearly set off against backgrounds of spiral filling, but remain flush with the surface.

A predecessor to these, distinguished from them by a less pronounced curve to its silhouette and a decor that fills the zones evenly with dense linear patterns, is in the Museum of Far Eastern Antiquities in Stockholm.²⁴ Midway between this and the group to which ours belongs, in both shape and decor, is a *hu* formerly owned by Yamanaka and Co., Osaka.²⁵ This whole series would be followed by *hu* with the typical designs in relief and prominent flanges of the late An-yang style, of which good examples are in the Portland Art Museum and the S. Kawai Collection, Kyoto.²⁶ This convincing sequence, in which changes in the nature of the surface decor are accompanied by changes in shape, places this *hu* in the middle An-yang period, probably 12th century.

The existence of a similar *hu* with a lid, formerly in the Asano Collection, Osaka,²⁷ suggests that the others may originally have been fitted with lids as well. This example also differs from all the others cited above in bearing a two-character inscription.

TECHNICAL OBSERVATIONS

This vessel, which is cast in one piece, bears vestiges of mold marks in

²³ For others see: Huang, *Yeh-chung* . . . , III, A, 29 closest to this *hu*; and Watson, *Ancient Chinese bronzes*, Pl. 7b, a vessel in the Academia Sinica, Taipei, with a more flaring top.

²⁴ Karlgren, *New Studies* . . . , No. 628, Pl. XLVIII, and Loehr, *The bronze styles* . . . , Fig. 10.

²⁵ Umehara, *SKS/J*, I/31.

²⁶ Mizuno, *In shū* . . . , Pl. 68, and Umehara, *op. cit.*, I/28.

²⁷ Umehara, *op. cit.*, I/33.

vertical lines along the ends with the vertical tubulated lug handles but only vestiges of a pattern division show along the sides. The upper part of the foot, directly below the bottom, is pierced by two rectangular holes in the line of the long axis. Otherwise the underside of the bottom is plain. The tubulated lug handles (or rope holders) are cast as part of the bronze. Under the body bulges on either side of the two squarish openings are vestiges of chaplets. One is a small block of *lei-wen* decor, very similar to the bit of *lei-wen* that serves as a chaplet in a *p'an* in the British Museum (No. 1953/5-11).

The patina is uneven; a portion of the surface is covered with grayish green, tin oxide but other areas are encrusted with warty malachite and cuprite. The upper portion of the vessel inside is deeply encrusted, but the bottom is smooth and metallic looking.

The vessel is not as intact as it appears to be; an old crack which extends from the rim to one of the lug handles has been filled with plaster and concealed with bright-green paint which contains Paris green pigment. The painted areas are easily revealed by their pinkish fluorescence in ultraviolet light.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 76.4%; Sn 18.1; Pb 3.0; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.02%; Fe 0.03; Co < 0.001; Ni 0.001; Sb 0.04.

Ku

Shang dynasty (middle An-yang, 12th century B.C.)

Inscribed with one character inside the foot

Height, 30.8 cm. (12 $\frac{1}{8}$ in.)

Width, 21.5 cm. (8 $\frac{1}{2}$ in.)

Weight, 2.38 kg. (5 lbs., 4 oz.)

Accession number 07.34

Somewhat thicker and heavier than the normal *ku* shape, this vessel is largely covered with rough green malachite encrustation. Where this has flaked off, an extremely smooth gray patination is revealed. The upper part is plain, and the central and lower sections are decorated with confronted *k'uei* dragons forming *t'ao-t'ieh* masks cast in low relief. Those on the center band have low rounded flanges down the middle, and the faulty casting has left an eccentric plain area on one side.

Mr. Freer's original note reads: "Very beautiful and believed by Japanese experts, including Mr. Fujita, to be genuine Chou. Compare with S.I. 206" (our No. 7). Mr. Lodge in 1942 considered it probably more recent casting and catalogued it as "Chou dynasty type."



NUMBER SIX (07.34)

NUMBER SIX

STYLE AND CHRONOLOGY

While the squat shape and simple design relate this *ku* to examples believed to date from the early An-yang period,²⁸ it is set apart from these by several features: the widely flaring top; the silhouette broken by the bulging central section (foreshadowed in the *Hui-hsien* example by a slight convexity in the same position), and a raised foot; and the presence of two rudimentary flanges projecting slightly from the center section. These features of the shape, together with the more highly evolved character of the *t'ao-t'ieh* designs, indicate a date in the middle An-yang period. The shape, rather than marking any real affinity with the early types, is rather to be seen as a hybrid product, midway between a thicker-than-usual *ku*²⁹ and a thinner-than-usual *tsun*.³⁰ Vessels of more or less this shape occur in the An-yang finds.³¹

TECHNICAL OBSERVATIONS

The vessel is cast in one piece probably by direct casting in a two-piece (four-division) mold although no mold marks are visible. The flanges and certain details of sunken decor have a smoothed-down look.

Like most vessels of this type, the bottom is set high on the inside just where the bulbous middle and the plain double-ribbed band meet. Partial removal of the patina on the underside of the bottom shows the existence of a dark spot at the center which seems to be the remains of a chaplet. The condition is quite similar to that found on the bottom of our *ku* fragment (No. 11). The double-ribbed band bears on opposite sides two sunken crosses which are common to vessels of this type, perhaps caused by some kind of spacer used to keep outer and inner mold sections properly separated. The arm of one cross is not completely filled in which leaves an irregular hole, apparently a casting flaw.

²⁸ See Li Chi, *Yin-shang-shih-tai*, *Academia Sinica Bulletin* 34, Pl. III, No. 2, and Pl. VI; also *Hui-hsien fa-chüeh pao-kao*, Pl. 14, No. 4; Umehara, *SKS/J*, II, 175; and Loehr, *The bronze styles of the Anyang Period*, figs. 1 and 2.

²⁹ Jung Keng, *Shang-chou*, no. 566.

³⁰ *Op. cit.*, no. 509, or No. 12 (55.1), or Umehara, *SKS/J*, II/140, which is in fact quite similar in shape to 07.34 but is classified as a *tsun*.

³¹ Li Chi, . . . *the bronze ku* . . . , plate XLIII, a crude and undecorated piece.

The single character inscription is cast-in and has comparatively high ridges on either side of the grooves; a relief line surrounds the character. Much of the surface, especially the upper portion, is thinly covered with a crust of pebbly malachite, and where the malachite is broken away, a fine tin-oxide patina shows. There is no evidence of breaks or repairs.

Composition: Sample taken from lower edge of foot.

Wet chemical analysis: Cu 76.7%; Sn 15.2; Pb 4.9; Total 96.8.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.1; Co 0.001; Ni 0.009; As 0.3; Sb 0.03; Bi 0.09; Al 0.002; Mg 0.001; Mn < 0.001; Si 0.02.

INSCRIPTION

On the inside of the base a single cast-in graph, *shih* “recorder,” “scribe” appears. It is surrounded by an irregularly shaped frame in rilievo. Our inscription was first published in the *Yi-lin-kuan chi-chin t'u-chih* wherein was reproduced also a full-length rubbing depicting the vessel. Numerous other inscribed vessels containing the graph *shih* including a fully attested item are recorded elsewhere.



Ku

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 26.6 cm. (10½ in.)

Width, 15.0 cm. (5⅞ in.)

Weight, 1.05 kg. (2 lbs., 5 oz.)

Accession number 11.51

The upper section of this slender, wide-mouthed *ku* is undecorated, and the central and lower sections are covered with confronted *k'uei* dragons forming *t'ao-t'ieh* masks. Both design areas are bordered with bands of small circles, and the center section has two low rounded flanges. The surface has evidently been waxed and is smooth, dark brown encrusted with areas of malachite.

Mr. Freer believed this to be a genuine specimen of Chou bronze. Mr. Lodge catalogued it "Ming dynasty or later."



NUMBER SEVEN (11.51)

STYLE AND CHRONOLOGY

In shape, this *ku* appears to be transitional between early forms, thicker and with simple concave curvilinear outlines, and the taller, narrower *ku* of later type, with silhouettes broken by flanges, different levels for successive zones, and raised decor. Such a sequence is suggested almost inevitably by the vessels themselves, and is borne out generally by Li Chi's studies of the An-yang material.³² In the intermediate stage represented by the present example, the barrel-shaped center section and the raised foot are the only interruptions in the otherwise smooth curve of the outline. *Ku* of similar shape were found at An-yang.³³ The surface patterns on these, although more dense and precise, have the same general character: all-over linear designs of curls and spirals, with no *t'ao-t'ieh* or other motifs emerging clearly. An example on which the two zones of decor are likewise bordered by bands of small circles was in the S. Kawai Collection, Kyoto;³⁴ another, which appears to match our vessel in crudeness as well, was owned by Chou Chin.³⁵ A disturbing feature is the shape of the eyes in the *t'ao-t'ieh* masks, rectangular with rounded corners and slit pupils. Eyes of this type are usually associated with decor of the late An-yang period, and here seem anachronistic.

TECHNICAL OBSERVATIONS

The vessel is cast in a single piece probably by direct casting in a two-piece (four-division) mold with true joins on the halves midway between the flanges. There are breaks in the *lei-wen* decor at the quarters. The two vestigial flanges lack mold marks. Plain ribbed bands appear above and below the bulbous middle, but there is no sign of the usual cruciform perforations. Inside of the foot three narrow bracket-like projections appear to support the high-set bottom. The underside of the bottom was scraped to bare metal, and no evidence of chaplets was found. There is,

³² Li Chi, *Yin-shang shih-tai* . . . , pp. 699-739.

³³ Li Chi, *op. cit.*, Pl. VII, no. 2, and Pl. IX, no. 2.

³⁴ Umehara, *SKS/J*, II/175.

³⁵ Shang Ch'êng-tso, *Shih-erh-chia* . . . , pp. 28-9.

NUMBER SEVEN

however, near the center a small irregular brown patch much like that seen in the underside of the *ku* (No. 11). The quality of the casting register is poor and several areas of decor have a “smudged” look. In many respects the object is similar to Number 6.

Much of the surface is covered with smooth enamel-like malachite, which appears to cover an under layer of whitish cerussite. The remainder of the surface is glossy black.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 64.0%; Sn 5.9; Pb 25.9; Total 95.8.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.3; Co 0.02; Ni 0.02; As 0.1; Sb 0.5; Bi 0.2; Zn <0.03;

Al <0.001; Mg <0.001; Si 0.01.

The alloy is notable for its high content of lead; it bears a small quantity of zinc, just enough to be detected by spectrometric methods.

Ku

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of two characters

Height, 28.6 cm. (11¼ in.)

Width, 15.9 cm. (6¼ in.)

Weight, 0.94 kg. (2 lbs., 1 oz.)

Accession number 40.3

This, the smallest and thinnest cast *ku* in the collection, is decorated with the usual *t'ao-t'ieh* and flanges on the lower and middle sections. The lower section is topped by two pairs of confronted cicadas; and on the upper section four rising blades are based on two pairs of confronted serpents. Finely cast *lei-wen* cover the two lower sections; and the surface shows considerable areas of unaltered metal, some smooth, greenish-gray patination and patches of malachite and cuprite.



NUMBER EIGHT (40.3)

NUMBER EIGHT

STYLE AND CHRONOLOGY

While there is no positive evidence for determining the chronological order of the three *ku* vessels, Numbers 8, 9, and 10 (40.3, 43.9, and 51.18), when they are seen in relation to the typological sequence we have outlined in the discussions of the preceding two, Numbers 6 and 7, it becomes clear that 40.3 should have priority among the three later examples. Its shape retains more of the original even curve, while the other two tend to take on the form of tall cylinders with flaring tops and bases. The foot is lower; the flanges are narrower and scarcely disrupt the continuity of the outline. The center section retains a slight bulge, although not so pronounced as the barrel-shaped mid-sections of *ku* of the preceding stage (such as No. 7); by the time of the stage represented in Numbers 9 and 10, this bulge has disappeared altogether.

The decor, as on the other two, belongs to the type designated in Loehr's sequence as the (A) variety of his Fifth Style: both the *t'ao-t'ieh* components and the ground are covered evenly with fine spiral filling (*lei-wen*), but the former are raised slightly to produce a decor on two levels, which does not, however, have the plastic character of proper relief. Decor of this type is seen also on the *chia* (No. 22), and on several other vessels in the Freer Gallery.

A *ku* of similar shape and closely related design was found at Hou-chia-chuang, An-yang.³⁶ On this, as here, we see the following sequence of zones, reading upward from the foot: a broad zone with dispersed *t'ao-t'ieh*; a narrow zone with cicadas; a bare area with two raised "bow-strings" and the common cross-shaped perforations; a slightly bulging mid-section with dispersed *t'ao-t'ieh*; a narrow band with serpents; and the flaring top, with "rising blades" extending nearly to the rim. While a correlation of *ku* types with stratigraphic evidence at Hsiao-t'un and Hou-chia-chuang yielded no clear-cut typological sequence, the addition of flanges appears to be a relatively late phenomenon, as is the presence of decor on all three sections of the body, including the top.³⁷

³⁶ Li Chi, *Yin-shang shih-tai* . . . , Pl. X.

³⁷ Li Chi, . . . *the bronze ku* . . . , pp. 126-128.

TECHNICAL OBSERVATIONS

The object is cast directly in one piece apparently in a two-piece (four-division) mold, but it is so highly finished that only vestiges of mold marks show on the underside of the thin flanges. The two cruciform perforations in the lower section just below the high bottom are common to this type of vessel. Their purpose is unknown, but they may have been caused by spacers or devices used to separate the inner from the outer mold. Located slightly off center in the high-set bottom is a squarish chaplet made of bronze that is slightly redder than the surrounding metal. On the inside of the foot on the quadrants between the two cross-like perforations are two engaged long tapered brackets which seem to support the bottom. They are not unusual in vessels of this type. The two characters of the inscription are especially interesting because the edges of the deep cut lines are raised as if the character originally had been drawn in a plastic material with a stylus.

Most of the surface is covered with pale green, tin-oxide patina dotted here and there with rough patches of cuprite and malachite.

When the fine *lei-wen* pattern of the design in the bulbous part of the stem was examined microscopically, it was noted that the fossae in certain areas are filled with a light colored substance or paste which looks intentionally placed. In some places the fill is green stained. Analysis shows the whitish substance is chiefly fine grained angular quartz. Quartz is also the chief component of some of the artificial black inlay or fill in the design of other bronzes. There are no breaks or losses, no evidence of repair; the condition is excellent.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 75.2%; Sn 19.0; Pb 4.8; Total 99.0.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Fe 0.06; Co 0.004; Ni 0.03; Cr 0.003; Mg 0.001; Mn < 0.001; Si 0.02.

INSCRIPTION

The cast inscription comprises the graph *chung* "middle" and the three elements, "double man," *pei* "cowrie" and *yu* "hand" which in com-

NUMBER EIGHT

bination may be the character *te* “receive.” This inscription has been reproduced in the old Freer catalogue and in *Shuang-chien* (1.34). A *lei* with lid has the same combination of elements but without the character *chung* (*Hsiao-chiao* 4.69a) while a *ting* has only “cowrie” + “hand” (*Shang-Chou*, No. 26). Attention might also be drawn to a *yu* which has the “cowrie” + “hand” combination within a *Ya-hsing* followed by *fu-kuei* (*Chia-pien* 8.9). These seem to be all the relevant examples available in publication.





Detail of decor

Ku

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of two characters

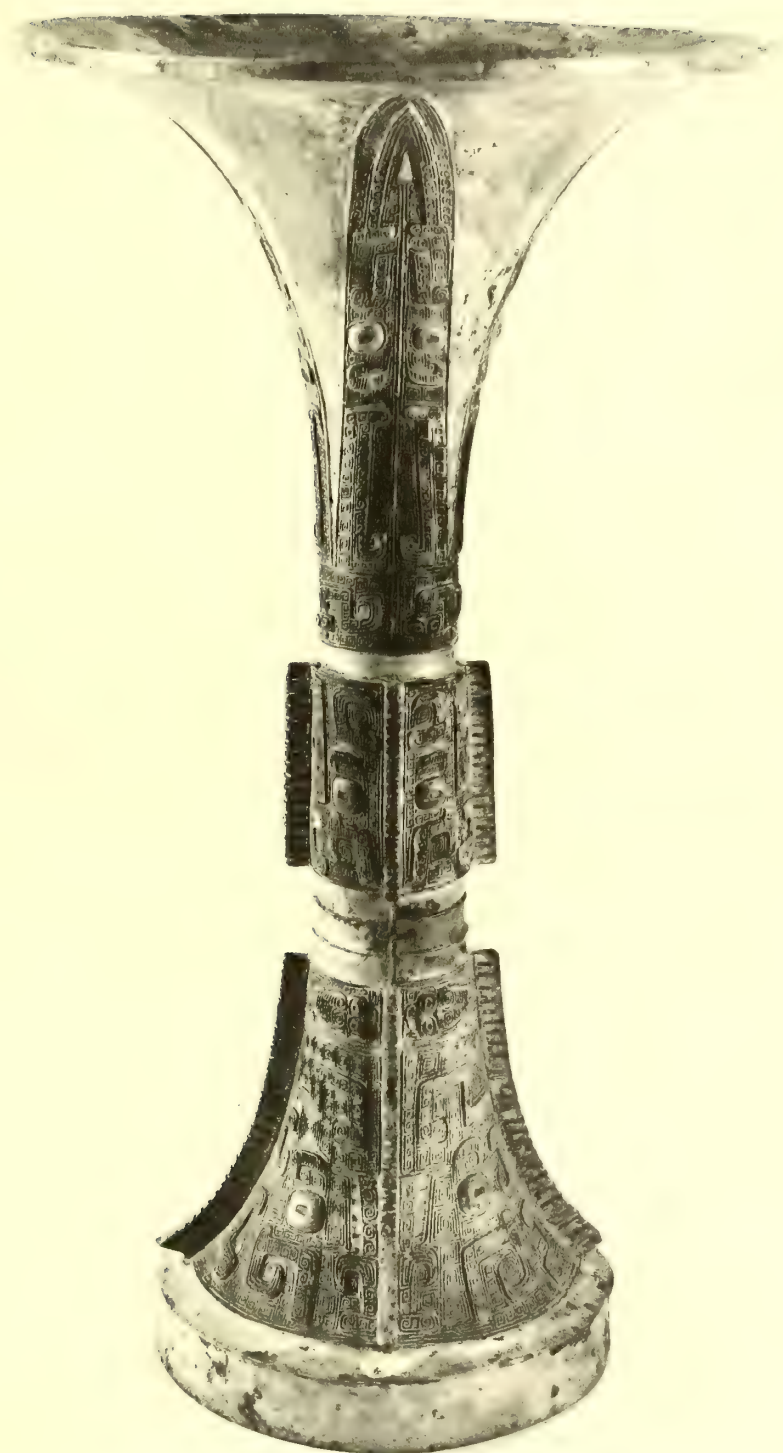
Height, 29.0 cm. (11 $\frac{3}{8}$ in.)

Width, 16.5 cm. (6 $\frac{1}{2}$ in.)

Weight, 1.30 kg. (2 lbs., 14 oz.)

Accession number 43.9

Though there are slight differences in detail, the form and decoration of this *ku* make it very similar to Number 8. This is slenderer in the waist and the sides are straight at that point. The metal of the vessel is thicker throughout. This *ku* also has a higher foot which accounts for the difference in overall height. Most striking perhaps is the difference in surface texture resulting from the handling of the *lei-wen* pattern. Although equally fine and precise in arrangement, the ridges and fossae here are somewhat rounded while on Number 8 they are exactly squared in section. A large amount of cuprite in the corrosion product gives this vessel large areas of reddish hue spreading over the otherwise uniform gray-green surface.



NUMBER NINE (43.9)

NUMBER NINE

STYLE AND CHRONOLOGY

This vessel has much in common with Number 8 and many of the stylistic comments on that *ku* apply as well to this one. The succession of decor zones is the same, even to the bands of serpents above, and of cicadas just below, the mid-section. The appearance of the two motifs in these positions on a number of *ku*³⁸ suggests that they and the ideas they symbolized (perhaps having to do in both cases with rebirth after a period of dormancy) had some special association with the ritual function of the *ku*.

The shape, a simple cylinder flaring at top and bottom, belongs to a late stage in the evolution of the *ku* type, as do the prominent flanges that interrupt the smooth contour and impart to the vessel a slightly harsher, more angular character. Approximately the same stage would seem to be represented by two *ku* found at Hou-chia-chuang, which Li Chi places in the latest of his three stages in the development of the *ku* form.³⁹ Another *ku* closely related in design, slightly thicker in the proportions but otherwise differing only in minor details of decor, was found in one of the graves at Ta-ssu-k'ung Ts'un near An-yang.⁴⁰

TECHNICAL OBSERVATIONS

The vessel was cast directly in one piece apparently in a two-piece (four-division) mold with true joins separating the opposing *t'ao-t'ieh* figures. Only vestiges of mold marks appear on the notched flanges. Like most vessels of this type, the bottom is high-set just above the double-ribbed band at the top of the lower section. The two opposing sunken crosses here are not perforate. Inside the base, just below the bottom and directly opposite the flanges, are four narrow ribs or brackets which seem to support the bottom. A single squarish chaplet, redder in color than the surrounding metal, is placed just off center in the bottom.

There is very little crusty patina except low on the inside. In some areas the fossae of the design are filled nearly flush with cuprite and in the

³⁸ Cf., e.g., Watson, *Ancient Chinese bronzes*, Pl. 20; and Umehara, *SKS/J*, II, 158 and 160.

³⁹ Li Chi, *Yin-shang shih-tai* . . . , Pl. 10; also . . . *the bronze ku* . . . , Pl. XXXIII.

⁴⁰ Watson, *Archaeology* . . . , p. 22 and Pl. 52.

notched flanges the cuprite is overlaid with earthy residues. The lines of the inscription are also filled flush with cuprite and redeposited copper, which contrasts strongly with the surrounding pale green patina. In ultraviolet light a fairly large patch inside the rim fluoresces strongly; this and smaller fluorescing areas on the stem reveal touch-up paint. The paint probably conceals cuprite laid bare in a former cleaning operation; otherwise, the vessel is in excellent condition.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 73.8%; Sn 17.5; Pb 7.0; Total 98.3.

Additional elements estimated by emission spectrometry: Ag 0.08%; Fe 0.06; Co 0.004; Ni 0.02; As 0.3; Sb 0.01; Bi 0.03; Cr 0.003; Mg 0.002; Mn < 0.001; Si 0.04.

INSCRIPTION

The inscription comprises a chariot together with a graph depicting “two feet astride a stream” which is transcribed usually as *she* “to ford a stream”; in oracle bone script it is used in this sense and is written in two variant forms.

Of special interest is the drawing of the chariot which contains details of its structure present also in several other inscription graphs. The significance of these has been particularly well confirmed in the Western Chou burial pit (No. 2) excavated recently at the Chang-chia-p’o site, Feng-hsi, Shensi (*Feng-hsi fa-chüeh pao-kao*, 1962). Two chariots were found, one with a team of two horses and the other with four horses. The former illustrates such details in the normal archaic graph as: the carriage box (*yii*), wheels (*lun*), linch-pins (*hsia*), shaft (*chou*), cross-piece (*heng*) and yokes, while the four-horse chariot shows the two extra yokes as in our ideograph. Two semi-circles drawn at the apexes of the two center yokes represent the jingles (*luan*).



Ku

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of one character

Height, 33.0 cm. (13 in.)

Width, 19.0 cm. ($7\frac{1}{2}$ in.)

Weight, 1.50 kg. (3 lbs., 5 oz.)

Accession number 51.18

This largest and perhaps finest of the three *ku* in the collection differs from the others in some details. Most striking are the bold segmented flanges that rise from the bottom of the vessel to the top, with three interruptions, and protrude beyond the edge of the lip. The casting is exceptionally deep and fine all over, and the surface is covered with a uniform gray-green patina.



NUMBER TEN (51.18)

STYLE AND CHRONOLOGY

Although it exhibits essentially the same style as the last two this *ku* differs from them in two features: the second band of decor from the bottom is occupied by trunked dragons in place of cicadas; the flanges bisecting the rudimentary *t'ao-t'ieh* in the narrow "rising blades" and projecting even beyond the rim, foreshadow the flanges on early Chou vessels, where the projections are more extreme, often bending or curling downward.⁴¹ Each flange is here composed of four segments, corresponding to the four horizontal zones of the design. The effect of this augmentation is to further emphasize the quadripartite division of the decor, which imposes the "corners" and "sides" of a square or rectangular vessel on one actually round in section; and to make the piece as a whole conform better to that late Shang taste for the architectonic and severe of which Loehr has written: "The ideal appearance of a vessel now requires a monumental heaviness, a strong accent on the vertical divisions, angularity, and a jagged silhouette."

TECHNICAL OBSERVATIONS

The vessel is cast directly in one piece in a two-piece (four-division) mold with two joins dividing the two opposing *t'ao-t'ieh* masks of the lower and middle sections. Mold marks show only faintly along each of the four flanges. As is usual in vessels of this type, the bottom is cast high, just above the double-ribbed band, which separates base from the vessel proper. There are no brackets in the inside foot. The two crosses which oppose each other in the double-ribbed band are noteworthy because one is imperforate like those in *ku* Number 9, but the other is partially perforate as if metal accidentally failed to flow into the thin space provided in the mold (*fig. 7*). On the underside a single chaplet is visible in the high-set bottom. Around the inside of the flaring mouth are several small flaws in the original casting which have been filled in by the founder with metal repair plugs; they do not appear to be chaplets. Two smaller plugs extend clear through the vessel wall and are visible on the opposite side (*fig. 8*). The patina of the repairs is generally lighter in tone,

⁴¹ See, for example, the *fang-tsun*, No. 18.

NUMBER TEN

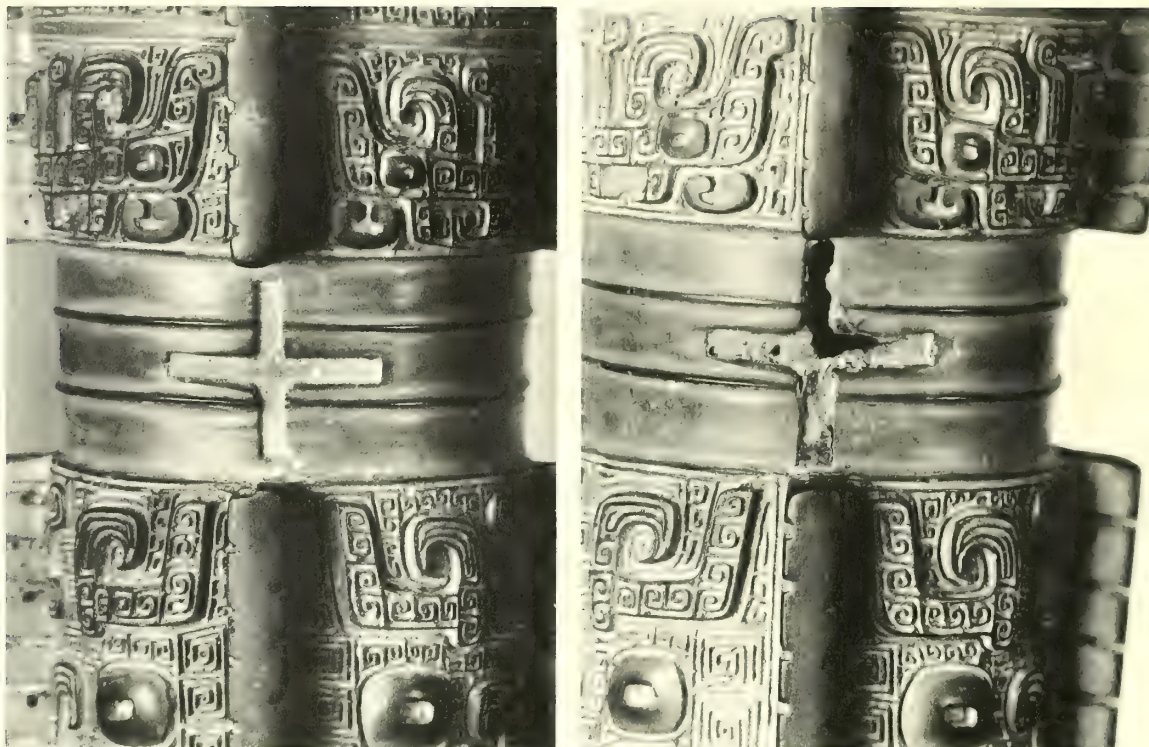
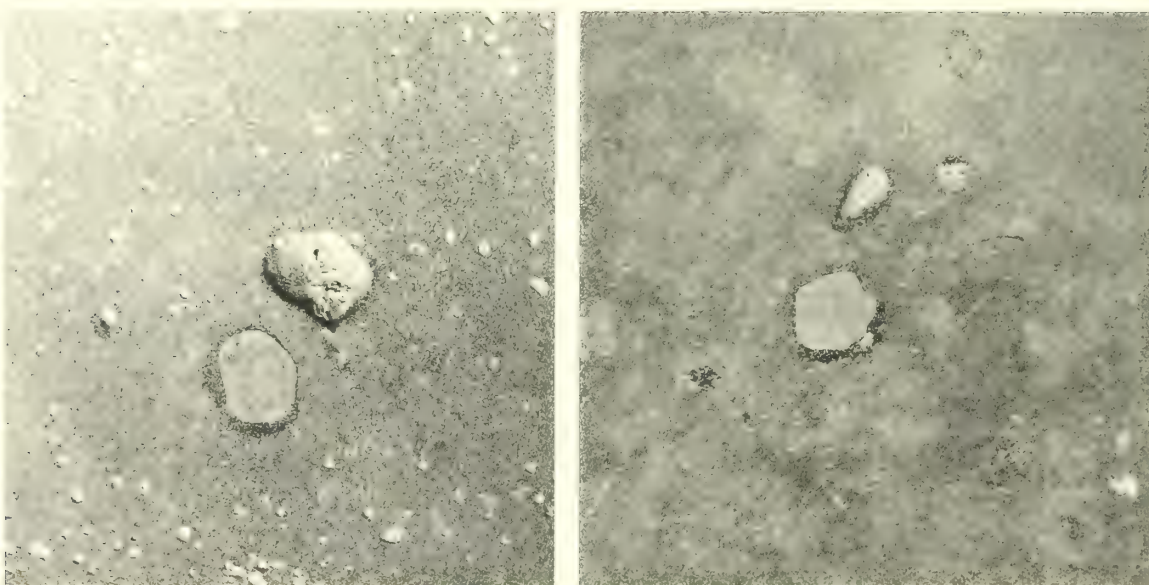


FIGURE 7



Outside

FIGURE 8

Inside

indicating the plugs are different in composition from the surrounding metal. The uniform, thin tin oxide corrosion layer over most of the surface has already been pointed out as a distinguishing characteristic of this piece. There are a few scattered blisters which indicate formation of sub-surface mineral products. The bright blue patch of crystalline azurite about 5 cm. in diameter on the inside of the throat of the vessel is difficult to account for because this blue mineral is scarcely found elsewhere on the vessel. The fossae of the design are nearly free from cuprite and contain only scattered earthy residues. The single character inscription is interesting because edges are slightly raised giving the impression that the character was originally formed by drawing a blunt stylus or by pressing a stamp into a plastic substance. The character is cast in and is quite different in execution from characters seen on many later Chou bronzes, but is very similar in style to the character of the inscription on the inside foot of *ku* Number 8.

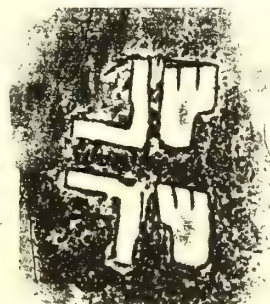
Composition: Sample taken from under edge of foot.

Wet chemical analysis: Cu 72.4%; Sn 13.3; Pb 11.3; Total 97.0.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.06; Co 0.01; Ni 0.01; Bi <0.03; Mn <0.001; Cr 0.003; Mg 0.001; Si 0.01.

INSCRIPTION

The graph comprises the elements *ch'ih* "crawl" and *pu* "walk" is cast-in under the base. There are several other clan names of similar structure; and this particular inscription has been reproduced in *Ch'ia-chai* (21.6a), *San-tai* (14.15a) and the *Hsü Yin-wen ts'un* (B.40a).



Fragment of a *ku*

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

No inscription

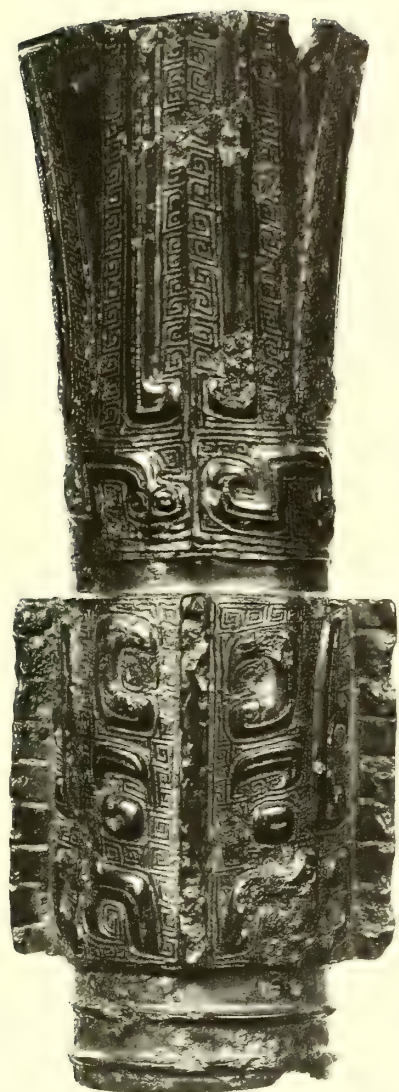
Height, 14.6 cm. ($5\frac{3}{4}$ in.)

Width, 5.1 cm. (2 in.)

Weight, 0.31 kg. (11 oz.)

Accession number 17.202

Evidently the remains of a broken *ku*, the vessel was cut off at the bottom of the plain band with raised “bowstring” decoration that lies just below the center section. The usual *t'ao-t'ieh* and flanges occupy that area; and above this is a band of serpents moving to the right. The customary rising-blade design is interrupted where the vessel was cut down. The workmanship, particularly on the *lei-wen* ground is exceptionally fine; and the whole surface is covered with a smooth, olive-green patina showing small areas of corrosion.



NUMBER ELEVEN (17.202)

NUMBER ELEVEN

STYLE AND CHRONOLOGY

The original *ku* of which this fragment remains was very similar to the last three. Perhaps the closest parallel is Number 9 which has the straight-sided center section and flanges that are still relatively thin. The serpents just above this are noteworthy in that they all face to the right; whereas, on Number 8 and Number 10 they appear in confronted pairs; and on Number 9 they all face to the left. The significance, if any, of these various arrangements remains unknown.

TECHNICAL OBSERVATIONS

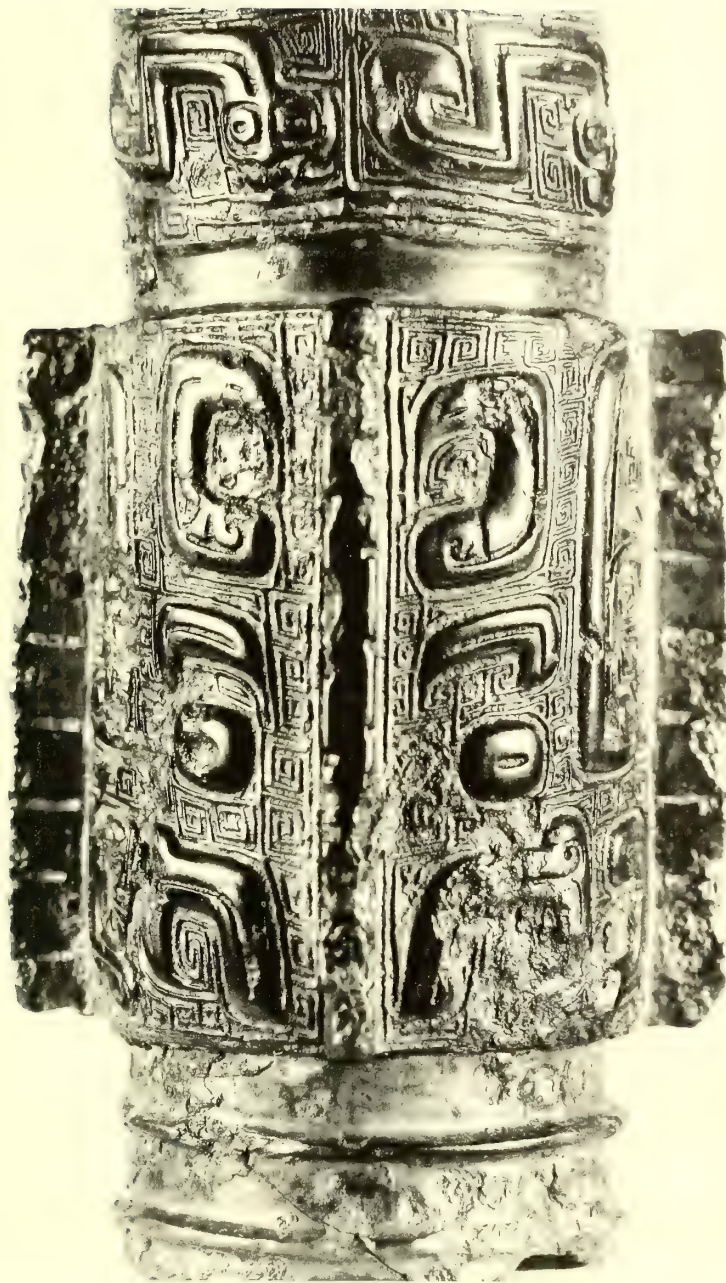
Although incomplete, there is enough evidence to indicate that this vessel was made by direct casting in a two-piece (four-division) mold. The true mold joins follow the flanges that divide the two back-to-back *t'ao-t'iehs*. The crosses that are often present in vessels of this type are lacking. Removal of corrosion crusts on the underside of the bottom has revealed a dark brown area, irregular in outline, which is filled with reddish cuprite. In some vessels of this type this is the location of chaplet; but if one was originally present, it has fallen out and has been replaced by corrosion product.

The surface is uniformly covered with dark greenish and brown stained tin-oxide patina. It is a fine example of pseudomorphic replacement of copper in the original alloy by tin oxide.

Composition: Sample taken from a flange.

Wet chemical analysis (single sample): Cu 76.7%; Sn 19.7; Pb 1.6;
Total 98.0.

Additional elements estimated by emission spectrometry: Ag 0.07%;
Fe 0.03; Co 0.001; Ni 0.005; As 0.2; Sb 0.07; Mg 0.001; Si 0.05.



Detail of decor

Tsun

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of one character inside

Height, 25.3 cm. (10 in.)

Width, 20.6 cm. (8 $\frac{1}{8}$ in.)

Weight, 2.38 kg. (5 lbs., 4 oz.)

Accession number 55.1

The vessel is of typical *tsun* shape with the upper half completely undecorated. On the central zone are *t'ao-t'ieh* masks on a ground of fine *lei-wen* with borders of small circles above and below. Around the foot is a band of much disintegrated dragon forms in intaglio. The surface is covered with a pale greenish-gray patina with minor areas of encrustation.



NUMBER TWELVE (55.1)

NUMBER TWELVE

STYLE AND CHRONOLOGY

If the evolution of *tsun* vessels of this type in the An-yang period followed the same general course as that of the closely related type *ku*, this vessel must be placed in a stage around the middle of that development. The profile, with a bulging mid-section breaking an otherwise continuous curve, resembles that of *ku* of the middle period, such as Number 7. This hypothesis is supported by the nature of the decor, which is flush with the surface except for the simple flanges and raised eyes of the *t'ao-t'ieh* masks, but in which the elements of the *t'ao-t'ieh* of the mid-section are clearly set off against a ground of *lei-wen* or spiral filling. The narrow bands of circles bordering this central zone are also common on *ku* of this style. The parallel development continues into the late An-yang period; *tsun* with the plastic relief decor and heavier flanges characteristic of that period exhibit the same change in shape as the later *ku*, with the body of the vessel cylindrical through much of its height, and only the foot and top flaring.⁴²

An interesting relative, although simpler in design, was in the collection of Mrs. Christian Holmes. The mid-section is narrower, and there is no band of circles below; but the quasi-engraved, linear pattern on the foot and the overall shape are similar. The Holmes vessel is called a *ku* by Karlgren.⁴³

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in a two-piece (four-division) mold. A mold join shows vertically on opposite sides, where the ends of the *t'ao-t'ieh* masks meet. The designs of the two masks are freely drawn and not identical (*fig. 9*). The poor register of the two halves of the design also shows in the encircling rings above the *t'ao-t'ieh* masks and in the decor of the foot. On the underside, where the bottom joins the base, are four wedge-like brackets which are commonly seen on bronzes of this type. There are no criss-cross lines under the bottom. Chaplets do not appear to be present. The single-character inscription seems to be cast into the

⁴² E.g., Umehara, *SKS/J*, II/148-151, and *SKS/E*, I/19-20.

⁴³ Karlgren, *Yin and Chou* . . . , Pl. XVIII, A107.

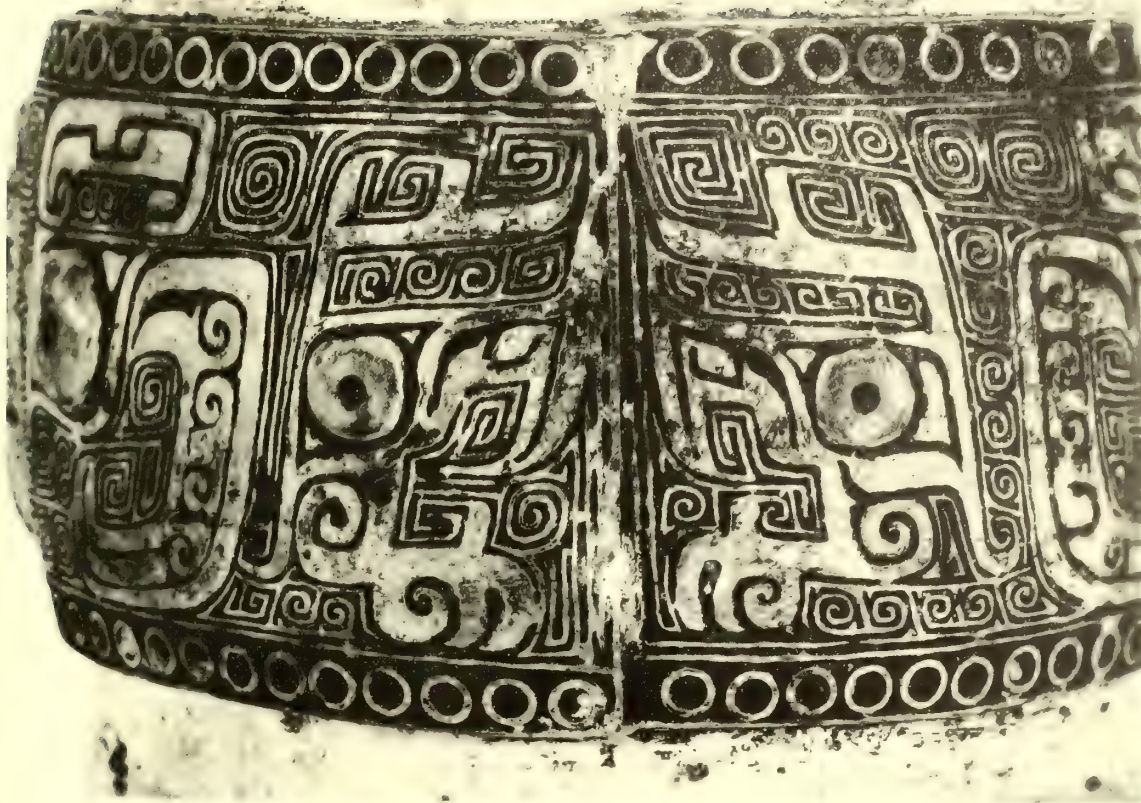


FIGURE 9

inside of the foot, where the wall is slightly thickened. The edges of the character are slightly raised as if the character had originally been incised in a plastic substance. Apparently the character has been worked mechanically, probably comparatively recently to remove corrosion products from the recesses. The pale, powdery patina, which is mostly tin oxide, tests strongly for lead; but this can be expected on the surface of an alloy with such high lead content. The presence of some lead carbonate may account for the chalky appearance of the bronze. The fossae of the design are filled with a black deposit made up mostly of the usual mixture of carbonaceous material and quartz. Some of this same carbonaceous material, however, over-lies tin oxide in undecorated areas. There are also scattered small patches of a harder and more glossy concretionary black substance which is chalcocite, or natural copper

NUMBER TWELVE

sulphide. The appearance in ultraviolet light is normal, and there is no evidence of repair or touch-ups.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 71.5%; Sn 6.5; Pb 19.5; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.3%;

Au < 0.01; Fe 0.3; Co 0.02; Ni 0.02; As 0.3; Sb 0.6; Bi 0.2; Cr 0.003;

Mg < 0.001; Mn < 0.001; Si 0.01.

INSCRIPTION

A single graph *ko* "Ko-dagger-axe" is cast-in on the inside of the base. The three-pronged *tui*-terminal at the base of the shaft may be noted.





Detail of inscription ($\times 3$)

Tsun

Shang dynasty (late An-yang, 12th–11th century B.C.)

Inscription of three characters inside bottom

Height, 30.5 cm. (12 in.)

Width, 23.2 cm. ($9\frac{1}{8}$ in.)

Weight, 4.39 kg. (9 lbs., 11 oz.)

Accession number 44.1

The sturdy vessel with flaring lip is decorated in three main horizontal bands. At the top are rising blades centered on triangular ridges. The central and lower zones bear *t'ao-t'ieh* in relief separated by four flanges. The surface is covered with a pale, grayish-green patina with some areas of encrustation.



NUMBER THIRTEEN (44.1)

NUMBER THIRTEEN

STYLE AND CHRONOLOGY

While there is nothing unusual in the shape or in the general nature and arrangement of the decor of this vessel, several puzzling features may be observed. On other *tsun* of this type, it is common for the flanges either to continue to the rim or to stop short at the mid-section, leaving the area above ornamented only with leaf designs or rising blades. Here a low ridge, triangular in section tapering toward the top and ending short of the rim, divides each of the leaf designs in place of a flange. This curious compromise is repeated on one other *tsun*, a piece in the J. H. P. F. Menten Collection, Baden.⁴⁴ On that, as here, the leaf-like forms are composed of bands with scale patterns and meanders, the latter enclosing the former, which flank the vertical ridges. On the sloping surfaces of these ridges, on both pieces, striated areas alternate with bare areas in a chevron-like design. Similar triangular flanges with the same simple ornamentation are found on a *chih* in the City Art Museum of St. Louis.⁴⁵ In the lower portions, the Menten *tsun* and ours agree in shape, in the profile of the flanges, and in the narrow bands above and below the center zone with thin patterns of alternating straight line and T-markings. This vessel, however, differs from the Menten bronze, and from most, if not all, other *tsun*, in that the flanges flank the *t'ao-t'ieh* masks instead of bisecting them. While free and integral *t'ao-t'ieh*, undivided by flanges, are common enough on other bronzes, e.g. the *ting* Number 30, they ordinarily occur on vessels which have no flanges; when flanges are present, the *t'ao-t'ieh* are normally centered on them. Even odder are the pairs of unornamented vertical bars between the sides of the *t'ao-t'ieh* masks and the flanges each bar pointed at the top and broken by two projections, a bulbous one at the base and a hooked one at the mid-point. Having no real connection with the *t'ao-t'ieh*, these make no sense as motifs, and can be explained only by reference to the Menten bronze and others, where similar forms appear on either side of the flanges, representing the snout of the beast. Here they have not only been isolated from their proper

⁴⁴ Umehara, *SKS/E*, I/15.

⁴⁵ Kidder, *Early Chinese bronzes . . .*, Pl. IV, 215:50.

context but have been turned backwards as well, with the hooked projections now pointing toward the flanges. The meaning of these curious aberrations from the usual pattern is not clear; but the fabrication of the vessel and its physical condition, as recorded below, provide no grounds for suspicion.

TECHNICAL OBSERVATIONS

This is a direct casting with true joins indicated by the break in the narrow band of *lei-wen* decor at the bottom of the blade elements. Traces of mold marks exist on the tops and bottoms of the flanges. The bottom is cast just above the plain circular ring which divides bowl from base. The bottom underside is plain. Chaplets if present, have not been identified.

The surface in many places, especially on the interior, is deeply corroded leaving a malachite-tinted whitish crust of tin oxide. The fossae of the design are filled with reddish cuprite. On the exterior about one-third of the way down from the rim a peculiar irregular groove nearly encircles the vessel; but probing along the line, reveals no break or evidence of repair. It seems to be a casting flaw. Also, in this region about midway between each flange is an outward bulge, fairly pro-

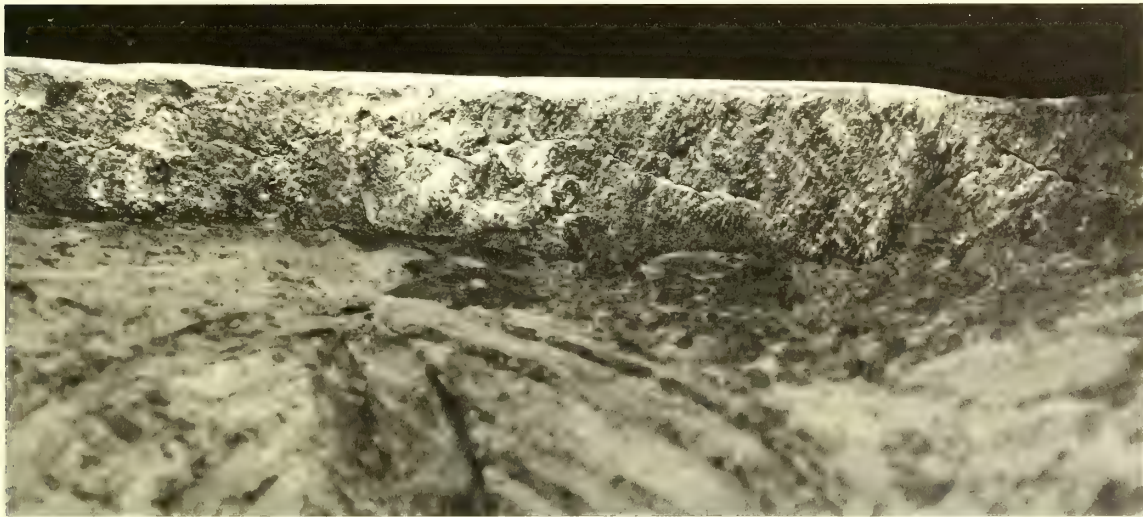


FIGURE 10

NUMBER THIRTEEN

nounced in one case. Again this seems to be a vagary of fabrication. The thicker tin oxide crusts are crossed by hairline cracks and small fissures. Vestiges of a weave pattern from early contact with fabric are retained in encrusted corrosion areas on the thick edge of the rim and also part way down the inside (*fig. 10*). In ultraviolet light bright fluorescent areas show around the inside of the rim and similar fluorescent areas show in the outside. Under the microscope, it is revealed that the fluorescence is caused by touch-up paint probably applied fairly recently. There are scattered earthy accretions and no signs of breaks or losses.

Composition: Sample taken from edge of foot.

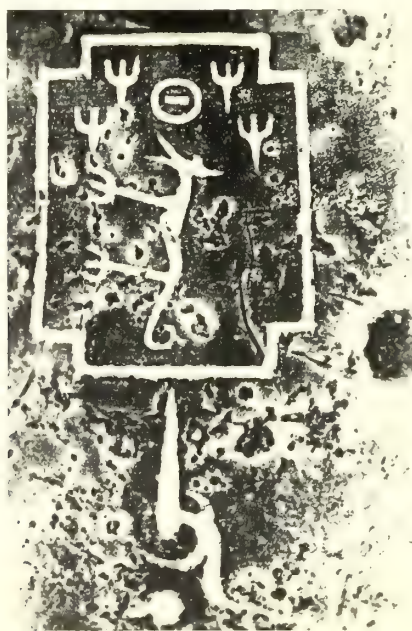
Wet chemical analysis: Cu 78.4%; Sn 17.2; Pb 0.2; Total 95.8.

Additional elements estimated by emission spectrometry: Ag 0.07%; Fe 0.4; Co 0.007; Ni 0.01; As 0.3; Sb 0.06; Cr 0.001; Mg 0.002; Mn 0.001; Si 0.01.

This bronze is one of the few in the series which has almost negligible lead content.

INSCRIPTION

The inscription comprises a *ya-hsing* in which is placed vertically a



NUMBER THIRTEEN

dog (?), above its head is the graph *jih* “day” and arranged around it are four “grass” elements. The dedicatory term Fu-ting (lit. “Father Four”) appears below. In a slightly less complex form the *ya-hsing* and contents was first recorded in the Sung catalogues. The more complex form as in this one was first reproduced in *Hsi-ch’ing*. It is associated with a group of inscribed vessels purported to have been unearthed at An-yang – three of these have recently been demonstrated to be spurious by mainland Chinese authorities.

Tsun

Recent

Inscription of one character inside base

Height, 43.2 cm. (17 in.)

Width, 31.5 cm. (12 $\frac{3}{8}$ in.)

Weight, 5.30 kg. (11 lbs., 11 oz.)

Accession number 09.279

This vessel has the shape of a normal *tsun* when that term is used for a large *ku* with thick body. Rising blades surround the upper section of the flanges above a band of *k'uei* dragons. *T'ao-t'ieh* masks adorn the center section and the base. The entire thing is so poorly made and the decoration is such a crude and weak approximation of what it purports to imitate, the piece can hardly be dignified by the name "forgery." It is simply a copy of an early type made as a curio in relatively recent times.

In his original note on this vessel Mr. Freer gave it no period attribution but simply wrote, "Examine carefully. The lower part seems of different quality from that of the upper. In any case, the jar should not be publicly shown. It is for comparative use of students."



NUMBER FOURTEEN (09.279)

NUMBER FOURTEEN

STYLE AND CHRONOLOGY

The maker of this vessel evidently tried to reproduce a late Shang or early Chou *tsun* of fairly standard type. A weakly undulating profile has been substituted for the notches and hooks on the flanges of the period as seen on Number 18; and here too the ends of those flanges protrude beyond the lip. One curious feature is that the main *t'ao-t'ieh* of the decoration are set between the flanges as they are on Number 13 instead of being bisected by them in the more usual way. In the zone above the middle section and in the rising blades on the upper half of the vessel the dragon forms are so debased as to be hardly recognizable.

TECHNICAL OBSERVATIONS

Much of the technical evidence indicates the object is relatively modern in manufacture.

The vessel is cast in two main parts probably by the *cire perdue* method. There are no join traces. The flared top is one member and the middle portion and foot are another member; and the two are joined with soft lead-tin solder. The high-set bottom is a separate piece of sheet metal which is fitted into the stricture between foot and middle portion without benefit of solder. The flanges, however, are cast as part of the main vessel member. The oval eyes of the pseudo-*t'ao-t'ieh* masks are inset with rectangular bars of yellow brass, different in color and probably in composition from the body metal. The modelling of the sunken decor appears to be cast; the lines are not precisely drawn, but are wavy. The single character inscription appears to be incised; it crosses a mold mark, which is clearly shown in the rubbing. The surface is uneven in tone; some areas are gold metallic, but there is no evidence of gilding. There are scattered areas of greenish copper corrosion, but obviously the object was never buried. There are no chaplets.

Composition: Sample taken from a flange.

Wet chemical analysis: Cu 67.2%; Sn 8.0; Pb 22.0; Total 97.2.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.2; Co 0.003; Ni 0.2; As 0.3; Sb 0.5; Bi 0.07; Zn 0.1; Mg < 0.001; Si < 0.001.

NUMBER FOURTEEN

The especially high lead content and the presence of zinc are to be noted.

INSCRIPTION

A single graph inscription, which seems to be cast-in, is located on the inside of the base. It is an imperfect yet obvious copy of block-print renderings in the Sung catalogues. Interestingly we may note propensities in the execution of the calligraphy of this, an honest facsimile, which are likewise characteristic of forgery.



Fragment of a *tsun*
Early Chou dynasty (late 11th century B.C.)
Inscription of eight characters inside base
Height, 12.0 cm. ($4\frac{3}{4}$ in.)
Width, 14.0 cm. ($5\frac{1}{2}$ in.)
Weight, 1.33 kg. (2 lbs., 15 oz.)
Accession number 16.142

This appears to be the central section of a large *tsun*. Two bold *t'ao-t'ieh* masks are flanked by crested birds on a ground of *lei-wen*. The smooth, brownish patina shows areas of malachite and azurite encrustations, and there are remains of heavy earthy accretion underneath. Both top and bottom of the vessel have been neatly cut off.



NUMBER FIFTEEN (16.142)

NUMBER FIFTEEN

STYLE AND CHRONOLOGY

The form of the original vessel is suggested by a closely related complete example in the Sumitomo Collection.⁴⁶ The style of the *t'ao-t'ieh*, and of the birds, indicates a date at the very end of Shang or the beginning of Chou.

TECHNICAL OBSERVATIONS

This center piece of a *tsun* shows evidence that the whole vessel was cast in a two-piece, four-division mold with true joins separating the large *t'ao-t'ieh*. There is evidence of three chaplets in the bottom near the inscription. The underside of the bottom is ridged with metal fins formed in fissures of the mold at the time of pouring; a higher ridge in the center may be the stump of a sprue. The foot ring inside is partially hidden with original core residues. The inscription is a little peculiar. The relief areas between some of the strokes are lost; the edges of the characters are wavy and undercut, which all suggest that the inscription may be etched.

The surface is well covered with a thin layer of warty malachite, especially in the recesses; but on the ridges this has worn away to reveal reddish cuprite. There are scattered areas of powdery green copper chloride salts. Smooth tin oxide patina covers the inside bottom. There are scattered earthy residues; but it is probable that the object has been above ground for a long time.

Composition: Sample taken from under a thick portion of the decor.

Wet chemical analysis: Cu 79.4%; Sn 13.0; Pb 5.0; Total 97.4.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.07; Co 0.001; Ni 0.01; As 0.2; Sb 0.03; Bi 0.09; Mg < 0.001; Si 0.01.

INSCRIPTION

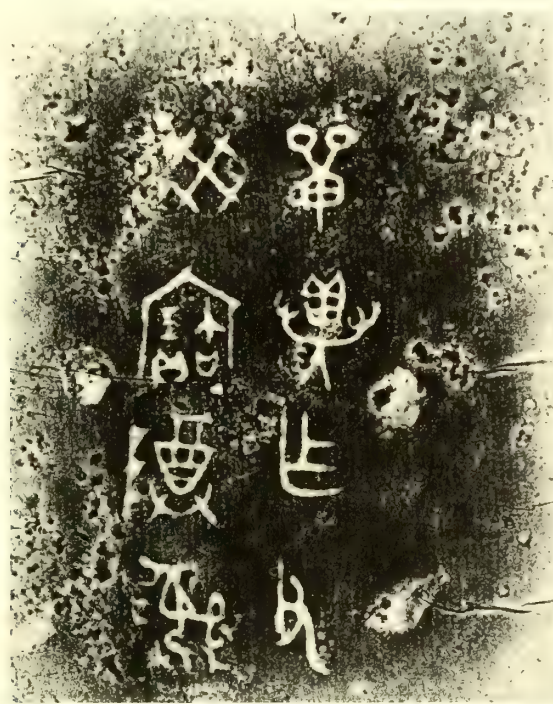
A cast-in inscription is located in the bottom interior of the vessel; it

⁴⁶ *Senoku seishō*, no. 19.

comprises eight characters which read:

1. Tan-i made (for) Fu-kuei
2. (this) valuable and honoured sacrificial vessel.

Our inscription was first reproduced in the *Yün-ch'ing* . . . (5.7b). Tan-i is the name of the vessel-maker who had the vessel cast in honour of his deceased forebear. The combination Fu-kuei, "father" plus one of the ten *t'ien-kan* "Heavenly stems," is a characteristic form of posthumous appellation employed in the bronze texts.



Tsun

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of one character

Height, 36.8 cm. (14½ in.)

Width, 37.2 cm. (14⅝ in.)

Weight, 13.15 kg. (29 lbs.)

Accession number 51.19

This large vessel of imposing proportions has a wide flaring neck, a short body with a narrow shoulder and a high conical base with straight sides. Vertically it is divided into six panels separated by segmented flanges. On the two lower zones each pair of panels combines to form a *t'ao-t'ieh* flanked in each case by vertical dragons, heads down. Above each of the body *t'ao-t'ieh* is a row of six birds arranged so that each three face the central flange. On the shoulder, three monster masks in high relief, with rams horns and upturned snouts, top the centers of the *t'ao-t'iehs* with dragons stretched out between. Just above at the base of the neck is another row of horizontal dragons, one in each panel, and above each dragon stand two rising blades. The relief is almost uniform in height and is backed in all cases by a ground of *lei-wen* cast with exceptional fineness. The vessel shows some areas of unaltered metal unevenly patinated with malachite and cuprite.



NUMBER SIXTEEN (51.19)

NUMBER SIXTEEN

STYLE AND CHRONOLOGY

There are a number of *tsun* of this distinctive shape.⁴⁷ All differ from the *tsun* type that seems merely a thicker form of the *ku* (e.g. Nos. 12 and 13) by being clearly articulated into three sections, with sharp breaks in the outline at the junctures of these and at the base of the sloping shoulder that surmounts the mid-section. Also, in their fully developed form they normally are divided vertically by six flanges, with high-relief heads of rams or other horned animals replacing every other flange segment on the shoulder. *Tsun* of the other type, with smooth silhouette, have only four flanges.

An example of what is probably an earlier form of the type was found at Hsiao-t'un.⁴⁸ Squatter in shape, with only three flanges (midway between each pair of animal heads) and flush decor in which motif and ground are barely distinguished, it appears to belong to the middle An-yang period. A *tsun* formerly owned by Yamanaka & Co. in Kyoto, published by Umehara,⁴⁹ would seem to date from around the same time or a little later. Transitional between these and ours are *tsun* still with flush decor, but with the additional flanges below the animal heads, all six flanges now being heavier and notched; examples are in the Pillsbury Collection, Minneapolis, and the British Museum,⁵⁰ the latter with the taller, narrower proportions which bring it very close to ours. The decor is of the two-level variety, with elements of the *t'ao-t'ieh* and other motifs raised above a ground of fine spirals and ornamented with linear patterns (cf. notes on the *ku*, No. 8). It is characteristic of a late stage in Shang bronze ornament, but not the latest, which features instead decor of a more plastic order in true relief.

TECHNICAL OBSERVATIONS

The vessel apparently was cast directly in a three-piece mold with true

⁴⁷ E.g. Mizuno, *In shū* . . . , Pl. 58, also Huang, *Yeh-chung* . . . , II/A/10. Others in Umehara *SKS/J*, II/122ff.

⁴⁸ Li Chi, *The beginnings* . . . , Pl. XXXIII, and "Yin-shang shih-tai . . . , Pl. VII, upper right, no. 242.

⁴⁹ *SKS/J*, II/131.

⁵⁰ Karlgren, . . . *Pillsbury* . . . , No. 28, and Watson, *Ancient Chinese bronzes*, Pl. 9a.

joins in vertical line with the three rectangular openings high up on the foot. The vessel walls, unusually thick, are 10 mm. at the rim and about 6 mm. at edge of the foot. Mold marks show faintly at tops and bottoms of some flanges, but not elsewhere. The inside walls of the base



FIGURE 11

NUMBER SIXTEEN

are marked on one side by four unevenly spaced, diagonal, narrow ridges or ribs whose significance is not known. The three animal heads on the shoulder are cast separately. In the crevice between the heads and the vessel, it is possible in places to insert a wafer-type razor blade to a depth of 0.5 cm. X-rays show that the heads are hollow cast and apparently core filled. Each one is centered over a low elongated boss or lug which projects from the vessel shoulder. In the X-ray one can see that surrounding each boss is a halo which may be hard solder that secures the head to the boss. On one side of each animal head is a low projection which may be remnants of a sprue (*fig. 11*). The fine *lei-wen* design of the shoulder continues under the edges of the heads. The inside of the vessel opposite the heads is smooth and gives no evidence of the method of attachment. The vessel was carefully examined but no chaplets were found. A ridge of metal on the inside bottom is probably caused by metal filling a crack in the core.

The metal is not deeply corroded. Much of the surface is covered with mottled, smooth, gray-green patina interrupted by patches of malachite and scattered areas of crystalline azurite. In places, small rosettes of crystalline malachite occur. The interior walls are fairly rough with patches of cuprite and other copper minerals. An imprint of fabric with plain weave shows in the mineralized surface of the interior. There are no breaks or losses or signs of ancient repairs. When the bronze was first received in 1951, certain areas were covered with vari-colored artificial patina made from a sort of paste in which the modern pigments, emerald green (Paris green), Prussian blue, barite, and the binding mediums starch and shellac were identified. These were intended to give the vessel more color and to conceal dull areas of cuprite; and they first showed up as a reddish fluorescence in ultraviolet light but were difficult to distinguish in natural light. Most of the falsifications were removed by solvents and by mechanical methods. Some earthy accretions were removed at the same time.

Composition: Sample taken from lower edge of foot.

Wet chemical analysis: Cu 77.9%; Sn 17.2; Pb 2.4; Total 97.5.

NUMBER SIXTEEN

Additional elements estimated by emission spectrometry: Ag 0.07%;
Fe 0.2; Co 0.004; Ni 0.004; Cr 0.002; Mg 0.001; Mn <0.001;
Si 0.01.

INSCRIPTION

The inscription which is cast-in is located on the inside of the base. It comprises a graph which is generally taken to be equivalent to *tzu* “son,” “a title” but is not necessarily *tzu* although it obviously depicts a child and an S-shaped dragon with horns. The latter is usually transcribed as *kung* “respectful.” The combination is probably a person’s name.



Fang-tsun

Early Chou dynasty (late 11th century B.C.)

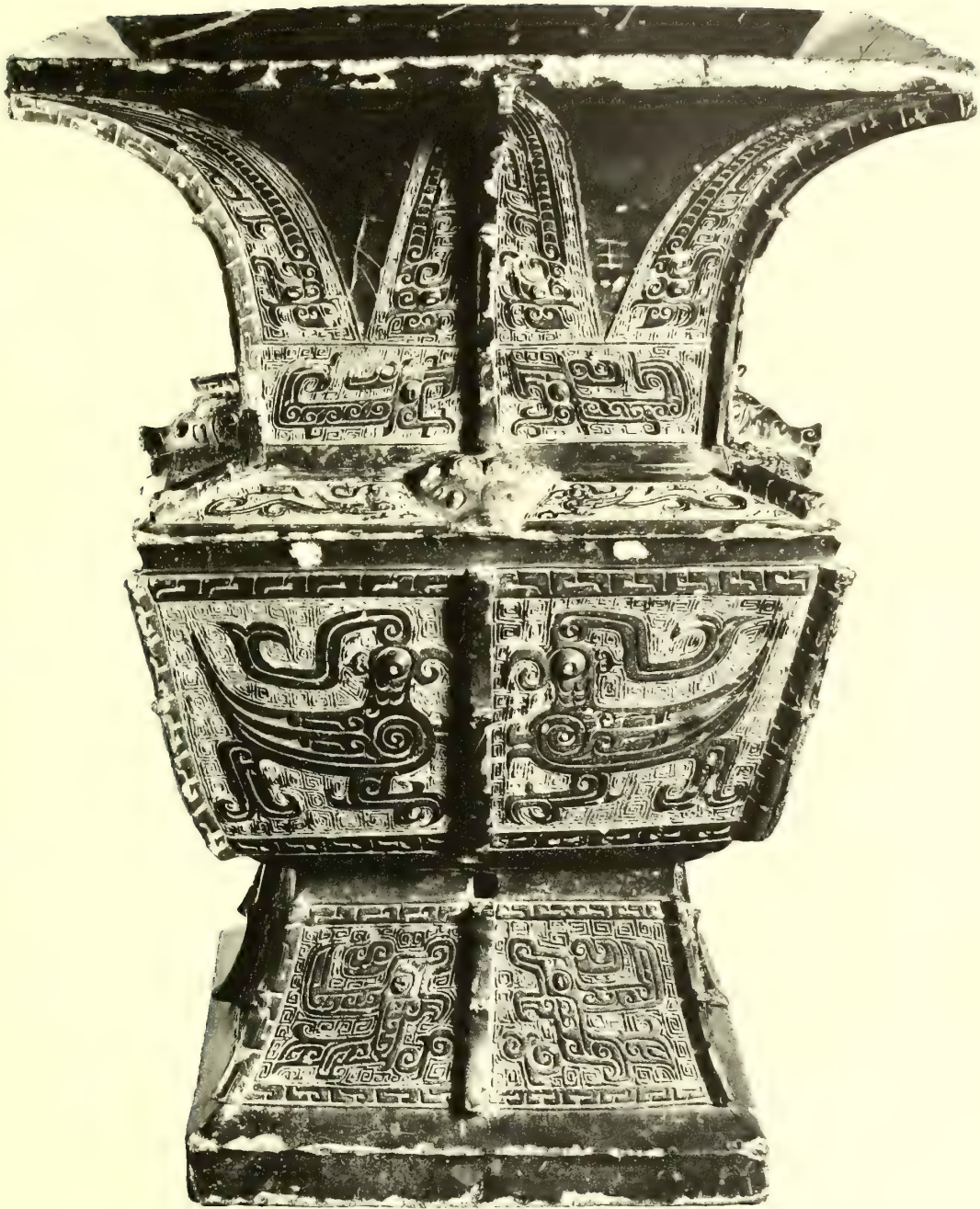
No inscription

Height, 35.3 cm. ($13\frac{7}{8}$ in.)Width, 27.6 cm. ($10\frac{7}{8}$ in.)

Weight, 7.40 kg. (16 lbs., 5 oz.)

Accession number 25.2

The square vessel has a widely flaring lip on top of an angular body; the whole set on a high, slightly flaring base with squared foot. Flanges at the corners and in the center of each side segment the decoration vertically from top to bottom. On the upper part are rising blades above confronted pairs of *k'uei* dragons, while crested birds, again in confronted pairs, form the principal decoration of the shoulder and the belly. A bovine head, almost in the round, lies in the center of each shoulder. Confronted pairs of crested dragons surround the foot. A glossy olive-brown patina covers the whole vessel and is covered in large areas by malachite incrustation.



NUMBER SEVENTEEN (25.2)

NUMBER SEVENTEEN

STYLE AND CHRONOLOGY

In its heaviness and angularity of form, and in the vertical emphasis imposed by the eight flanges running the entire height of the vessel, this *fang-tsun* reflects the architectonic taste of the Late Shang dynasty. Within this framework, however, the motifs and their role in the overall design reveal elements of the early Chou style, as we know it from bronzes with datable inscriptions. In place of the close integration of decor and shape characteristic of Shang (as seen e.g. in No. 16), the surface is now divided into sharply circumscribed areas, like panels, into which bird and dragon forms are fitted neatly, like cut-outs applied to a textured ground. The animals are composed principally of flat bands, divided by median lines or, in the cases of the dragons, filled with rows of curls. The bands tend to end in hooks, often bifurcated, and smaller hooks project from them at intervals. All this represents the beginnings of a mode that was to culminate in the abstract band decor of the Middle Chou style. The long-tailed birds on the sloping shoulder have their closest relatives on vessels of early Chou date such as the *hu* Number 75, the *yu* Number 50. From these derive the more schematized varieties seen, e.g., on the later *kuei* Number 70 or the *ting* Number 33 in which the tail often separates from the body of the bird. Watson notes that this form of the bird motif is absent from An-yang vessels.⁵¹ The *k'uei* that occupy the rising blades on the flaring top, placed in profile with heads downward, occur in variant form on other vessels of the period, such as Number 18, replacing the attenuated *t'ao-t'ieh* and dissolved cicada designs more common in this position on Shang examples.

The most prominent element of the decor, appearing in the center section, are the pairs of confronting birds, a motif which evidently gained popularity from the beginning of Chou; its evolution can be traced through a series of permutations down to the ninth century.⁵² This is one of its early occurrences, and the earliest in this collection.

⁵¹ Watson, *Ancient Chinese bronzes*, p. 53.

⁵² Cf. the discussions of the *yu* No. 58; the *kuei* No. 70; and *tsun* No. 74; and the *hu* No. 76.

TECHNICAL OBSERVATIONS

This vessel was apparently cast directly in a four-piece mold with true joins at the corners. Around each of the relief animal heads on the shoulder above the middle sections one can trace a seam which indicates the heads were separately cast and joined on, but there are no signs of hard solder or other evidence of how the heads were fixed in place. Two of the heads on adjacent sides are deeply encrusted with pale green tin-oxide corrosion product which is soft and tends to chip easily. This is further indication that the heads were cast separately. The underside is plain. The center of each face of the base is pierced by a squarish hole in the usual place just below the bottom. Two chaplets occur on each side in the plain band under the shoulder and one below the body bulge of the vessel. It is noteworthy that the surface of each chaplet has been eaten away by corrosion, leaving a pale green powdery residue, mostly tin oxide.



FIGURE 12

NUMBER SEVENTEEN

The sharpness of the modeling and crispness of the casting of this vessel is extraordinary (*fig. 12*). Most of the surface is uniformly covered with dark olive-green tin-oxide patina which has penetrated deeply into the metal, like that often seen on bronze mirrors. There are scattered patches of malachite; and earthy residues cling to the interior, to the inside of the foot, and in the fossae of the decor. A crack about 5 cm. long runs diagonally down one face from the rim edge. Someone has crudely scratched a ten-character inscription in modern Chinese into the patina inside of the vessel top. There is also a wantonly scratched area on another part of the inside surface.

Composition: Sample taken below edge under animal heads.

Wet chemical analysis: Cu 79.7%; Sn 13.6; Pb 2.0; Total 95.3.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 1.0; Co 0.03; Ni 0.009; As 0.1; Mn 0.001; Si 0.02.



Detail of animal head on shelf

Fang-tsun

Early Chou dynasty (11th century B.C.)

Inscription of 12 characters inside bottom

Height, 27.0 cm. (10 $\frac{5}{8}$ in.)

Width, 28.9 cm. (11 $\frac{3}{8}$ in.)

Weight, 5.67 kg. (12 lbs., 7 oz.)

Accession number 50.18

The central band of decoration is composed of bold *t'ao-t'ieh* masks centered on flanges. Above and below this are zones of confronted birds. At the top are rising blades consisting of vertical dragons in pairs centered on the corners. All four angles of the vessel are marked with exceptionally heavily notched and segmented flanges emphasized by protruding lugs at the top. The surface is covered with a dark greenish-gray patina and has some areas of heavy malachite and cuprite encrustation.



NUMBER EIGHTEEN (50.18)

STYLE AND CHRONOLOGY

The stylistic affinity of this vessel with the *Nieh-ling fang-i*, Number 38, is sufficient to assign it to date near the beginning of the Chou period, probably in the reign of King Ch'eng (1024–1005) and the *fang-tsun* of the *Nieh-ling* set now in the Palace Museum Collection, Taichung,⁵³ is in fact very similar. Apart from such details of decor as *t'ao-t'ieh* masks instead of confronting birds in the lowest zone of the Palace Museum piece, the two correspond closely.

In shape and design, the vessel follows the late Shang mode, as we have attempted to define it in foregoing discussions of the *ku* and *tsun* types. The perforation of the flanges, transforming them into rows of hooks and imparting a more ornate and fanciful character to the silhouette, reflects a new, less sober taste, as does the formation of the *t'ao-t'ieh* masks, in which organic power is sacrificed to an exuberant linear play.

A similar *fang-tsun*, in which, however, the openwork of the flanges on our vessel is represented only by shallow sunken designs on their surfaces, is in the Hakutsuru Museum, Ashiya.⁵⁴ It belongs to a set of seven vessels related by their inscriptions,⁵⁵ a set that like the *nieh-ling* series also includes *fang-i* and *huo* vessels. Another closely related *fang-tsun* is in the Brundage Collection (B.60b.1022).

TECHNICAL OBSERVATIONS

The vessel is cast in one piece from high-tin, low-lead bronze alloy, and the eight vertical mold marks on the notched flanges indicate that a four-piece (eight-division) mold was used. The true joins are located at the corners where they are clearly visible on the inside of the hooks of the flanges. On each face one can see vestiges of chaplets symmetrically placed, one between each pair of the rising blades on the neck and one located near either end of the plain band below. There are also two chaplets on the interior bottom opposite two corners of the inscription.

⁵³ See, *Ku-kung t'ung-ch'i . . .*, II/209.

⁵⁴ Mizuno, *In shū . . .*, Color Pl. XI.

⁵⁵ Mizuno, "In-shō . . . hennen . . .," p. 129 and Pl. 12.

NUMBER EIGHTEEN

The underside of the bottom does not show criss-cross marks but has four wedge-like brackets in the middle of each side where foot and bottom join. Corrosion is quite deep as indicated by the scattered heavy patches of cuprite, especially on the inside, and also by the low total for the principal elements shown in the chemical analysis. Pale green color of other areas also indicates extensive formation of tin oxide.

Composition: Samples taken from under edge of rim of foot.

Wet chemical analysis: Cu 75.8%; Sn 19.1; Pb 0.8; Total 95.7.

Additional elements estimated by emission spectrometry: Ag 0.1%;

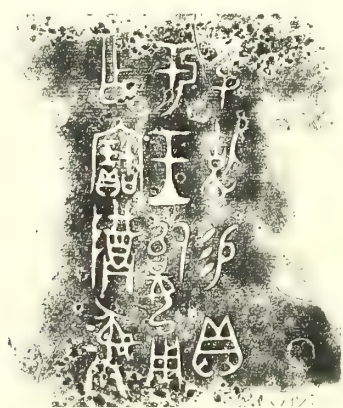
Au <0.01; Fe 0.7; Co 0.005; Ni 0.01; As 0.3; Sb 0.3; Bi 0.2; Cr 0.002; Mg <0.001; Mn <0.001; Si 0.04.

INSCRIPTION

A cast-in inscription of 12 characters in the inside bottom of this vessel reads:

1. Shu-wei was awarded cowries
2. by Wang-ssu. Therefore
3. made (this) precious and honored sacrificial vessel.

An attempt has been made to identify the title-name Wang-ssu in another inscription with Pao-ssu, the Consort of Yu Wang of Chou, but the argument lacks foundation. Our inscription has not hitherto been reproduced in publication.





Detail of decor and mold marks on flange, upper part of vessel
($\times 1.5$)

Lei

Recent

No inscription

Height, 54.6 cm. (21½ in.)

Width, 39.7 cm. (15⅝ in.)

Weight, 19.9 kg. (43 lbs., 13 oz.)

Accession number 09.257

The rectangular vessel with broad shoulder, high neck and lid is divided into six horizontal zones of decoration segmented vertically by heavy flanges at the four corners and in the middle of each side. Two large loop handles topped with monster heads are attached at the sides at the shoulder. On the lid, shoulder, and base are pairs of confronted birds on grounds of *lei-wen*. The upper zone on the body has a *t'ao-t'ieh* on each side and below these are hanging blades with plain areas between. Many of the decorated areas are inlaid with silver and gold, and the surface is covered with an even brown patina with scattered areas of malachite and cuprite. In general form the piece follows the style of the early Chou dynasty, but it is evidently a fabrication of Sung or later times.

When he bought this piece from Riu Cheng Chai [*sic*] in Peking, Mr. Freer wrote: "A copy of a late T'ang design which, I believe, was produced in the Sung period."



NUMBER NINETEEN (09.257)

NUMBER NINETEEN

STYLE AND CHRONOLOGY

The ancient prototype of this *lei* appeared in Shang times and continued on into Chou. There is a fine example of the Shang version in the Buckingham Collection at the Art Institute of Chicago;⁵⁶ and a Chou piece belongs to the City Art Museum in St. Louis.⁵⁷ The latter is clearly in the style the copyist had in mind when he made ours. Of course bronze vessels were not inlaid with precious metal until centuries later, and the use of gold and silver on this piece is anachronistic. The way in which the main design elements are raised above the surface on heavy slab-like areas and then inlaid with sheets of silver and smaller bits of gold recalls the work on a *ting* tripod that has been assigned to the Ming dynasty (ca.1600).⁵⁸ Our *lei* differs from that piece in that the *lei-wen* spirals are in relief instead of inlay, and the whole vessel is more crudely and strongly made, but it may well date from about the same time. The fact that it closely follows its archaic prototype in silhouette and overall design although not in the materials and the character of the relief, may perhaps indicate that the copyist's knowledge of old bronzes was based on wood-cut pictures in antiquarian catalogues rather than on actual antiques.

TECHNICAL OBSERVATIONS

There are no signs of mold marks, hence it is probable that the vessel was not cast in a piece mold. The vessel is a single casting, and the three handles are cast solid and joined to the vessel with soft solder. In the interior opposite the upper join of each handle are projections extending through the vessel wall, which in addition to solder, apparently permit some sort of mechanical lock for attachment of the handles. The foot including the bottom is a separate member joined to the lower edges of the vessel with soft solder. Underneath the bottom are two pairs of parallel ridges which connect the corners to form a criss-cross.

The outer surface of both vessel and lid including flanges is lavishly inlaid with silver foil, and the eyes of the beasts and birds are inlaid with

⁵⁶ Kelley and Ch'en, *Buckingham . . .*, p. 28.

⁵⁷ Kidder, *Early Chinese bronzes . . .*, plate XVIII.

⁵⁸ Jenyns and Watson, *Chinese art*, pp. 110-111.

NUMBER NINETEEN

gold. The *lei-wen* decor which fills in the background between the animal forms is rather crudely executed.

The vessel apparently has never been buried, and the patchy green which dots the surface is artificial patina made from coarse granules of ground mineral malachite held in place with an adhesive. It is quite similar to that on our *huo* (No. 111) and these two vessels may well at one time have passed through the same workshop.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 74.5%; Sn 5.2; Pb 15.0; Zn 3.7; Total 98.4.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Au 0.01; Fe 0.2; Co 0.003; Ni 0.2; As 0.2; Sb 0.5; Bi 0.03; Si < 0.001.

Chia

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of one character inside bottom

Height, 53.0 cm. (20 $\frac{7}{8}$ in.)

Width, 30.5 cm. (12 in.)

Weight, 7.60 kg. (16 lbs., 12 oz.)

Accession number 23.1

The broad deep bowl with elegantly flaring rim and convex bottom is supported on three slightly curving triangular legs. On one side is a strap handle, and the lip is surmounted by two rectangular uprights with tall round caps flaring outward at their bases. The decoration is cast in flat relief in two main registers divided into six vertical sections by five small notched flanges with the handle in the place of the sixth. Both registers are decorated with finely drawn, confronted dragons which form *t'ao-t'ieh* masks where they meet; short rising blades adorn the flaring upper third of the bowl; and a long pendent blade covers the outer surface of each leg. Each upright cap has four short rising blades around the sides and a whorl circle on the top. All decorated areas have an over-all *leiwén* background of exceptional fineness which is enhanced by the polished flat surface of the dark green patina.



NUMBER TWENTY (23.1)

NUMBER TWENTY

STYLE AND CHRONOLOGY

Two closely related pieces are known. One, taller and with legs proportionately long, is in the Nezu Museum, Tokyo;⁵⁹ the other in the Museum of Far Eastern Antiquities, Stockholm.⁶⁰ Both are reported to have been found at An-yang. Of the three, our *chia* would appear to be the earliest in style. The simple strap handle and the flat decor mark it as more archaic than the Nezu vessel, which, with its fully developed and raised *t'ao-t'ieh* design, is correctly placed by Mizuno in the late An-yang period. The *t'ao-t'ieh* on the Stockholm *chia*, while still flush with the surface, is rendered with greater coherence, and approaches more closely the late Shang form of this motif. In the system of An-yang bronze styles proposed by Loehr, ours belongs to the Fourth Style, but with some elements surviving from the Third, notably the characteristic "quills" rising from the backs of the dragons forming the *t'ao-t'ieh*. Two *chia* vessels which should precede all of these are in the Van Heusden Collection⁶¹ and the St. Louis Museum.⁶² Both feature similar strap handles and more primitive forms of the same type of *t'ao-t'ieh*, not set off by spiral fillings. In view of its position in this series, we can assign our *chia* a date in the middle An-yang period, perhaps in the twelfth century.

TECHNICAL OBSERVATIONS

The entire vessel, including handle, legs, and knobs, is cast in one piece apparently in a three-piece (six-division) mold with true joins in vertical line with the centers of the legs. Mold marks show clearly inside and outside the handle (*fig. 13*) and on all five flanges; that on the lower part of the handle is out of line with that on the short flange below. Each of the three legs is cast about a clay core which is revealed as a reddish brick-like substance where the tip of one leg has broken off (*fig. 14*). This core does not open up into the bottom of the vessel nor are there openings on

⁵⁹ Mizuno, *In shū . . .*, Pl. 35.

⁶⁰ Karlgren, "New Studies . . .," No. 1189, Pl. XXV.

⁶¹ Heusden, *Ancient Chinese bronzes . . .*, Pl. I and II.

⁶² Kidder, *Early Chinese bronzes . . .*, Pl. XII, No. 224:50.

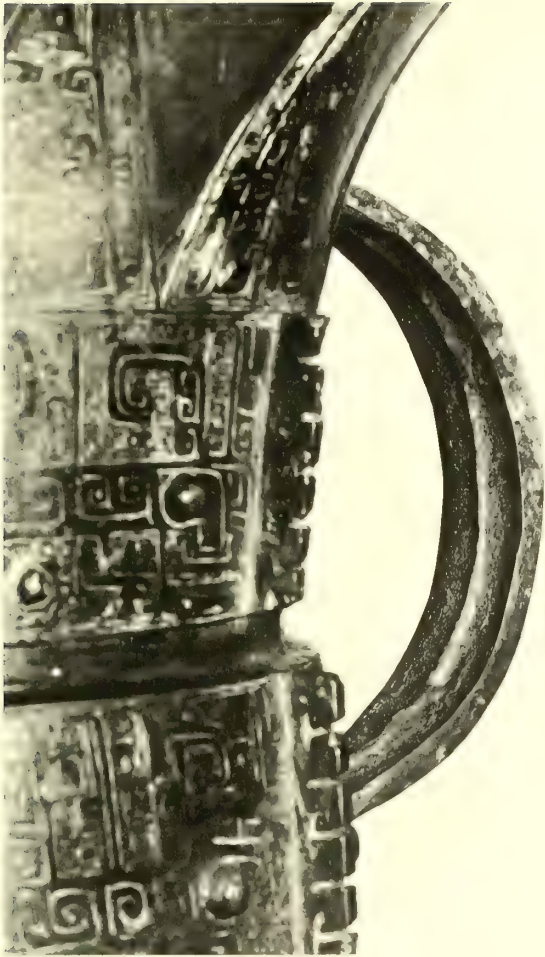


FIGURE 13

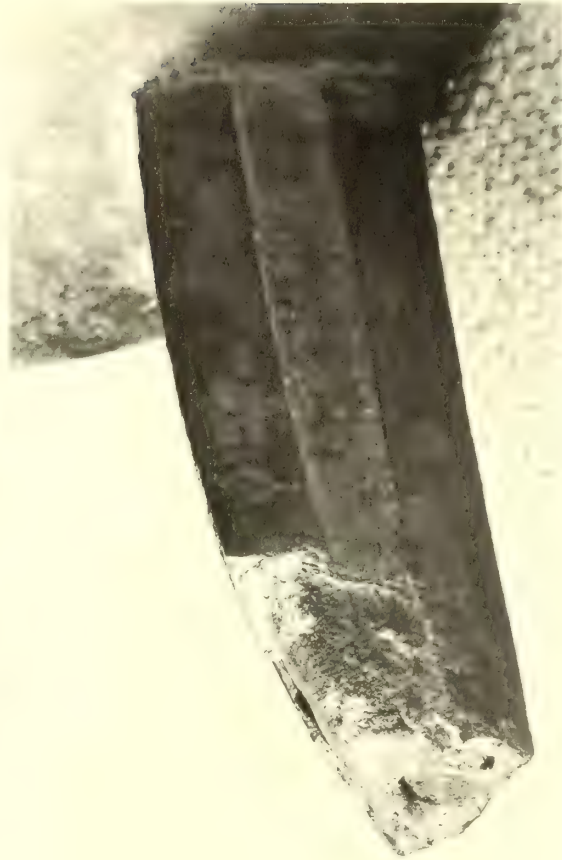


FIGURE 14

the insides of the legs through which it may be seen. Similar core material is inside the rectangular uprights and the round caps that top them. There is no evidence of a join where the legs meet the vessel or where the caps meet the uprights; under one cap a faint mold mark runs parallel to the outer side of the upright. No chaplets were observed.

The surface in general is smooth and dark green in color, but breaks and blister-like formations on the wide rim indicate that corrosion of the interior metal is fairly extensive. There are scattered patches of malachite.

Earthy residues are lodged inside the bottom. In ultraviolet light reddish fluorescent areas appear on the outside below the rim and about the legs; further examination shows these are caused by scattered touches of

NUMBER TWENTY

modern paint applied apparently for no good reason except to liven up the object with color. Except for the broken leg, the object is sound in structure and stable.

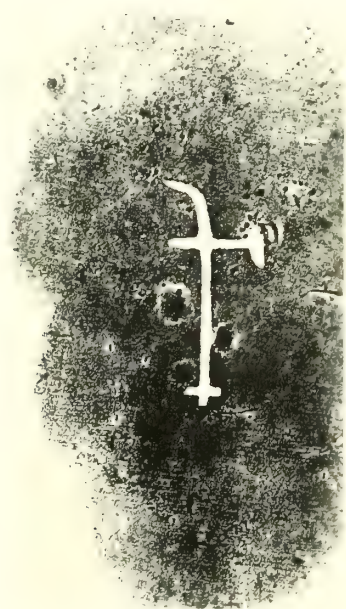
Composition: Sample taken from broken leg.

Wet chemical analysis: Cu 80.0%; Sn 14.3; Pb 4.7; Total 99.0.

Additional elements estimated by emission spectrometry: Ag 0.07%; Fe 0.03; Co 0.004; Ni 0.005; Bi 0.08; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.02.

INSCRIPTION

A single graph *wu*, fifth of the *t'ien-kan* Heavenly Stems, is cast-in on the inside bottom. It is actually a mirror-reversed rendering. An example of the latter is to be seen in the famous Ssu-mu Wu *fang-ting* excavated at An-yang in 1946, the largest bronze casting datable prior to the first millennium from China or elsewhere in the ancient world.





Detail of decor ($\times 1.5$)

Chia

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 41.9 cm. (16½ in.)

Width, 22.5 cm. (8¾ in.)

Weight, 3.69 kg. (8 lbs., 2 oz.)

Accession number 07.37

The customary *chia* shape has the two uprights on the rim surmounted by crested birds with sharply pointed, straight beaks. The handle at the back is topped by a broad bovine head with a thin segmented flange running down the center. Similar flanges divide the two bands of body ornament into six vertical sections with the handle taking the place of the sixth flange. The decorative bands consist of tightly drawn *lei-wen* forming *t'ao-t'ieh* patterns with only the horns and eyes in high relief. An over-all coating of brownish-green patina covers the surface, and there are areas of repair on the legs. Evidently the two uprights on the rim have also been restored. Mr. Freer noted this as a beautiful, rare, and genuine specimen of Han or Chou when he got it in 1907.



NUMBER TWENTY-ONE (07.37)

NUMBER TWENTY-ONE

STYLE AND CHRONOLOGY

The proportions of this *chia* are like those of the preceding example; and the main *t'ao-t'ieh* designs and the distinctive outline of the flanges all strengthen the impression that the piece belongs in the middle An-yang style. Another feature, the rounded eyes with no indentations for the pupils is also typical of that stage.

The high relief mask of a horned beast at the top of the strap handle, with a short flange between the horns, is of a type commonly found on the shoulders of *p'ou* and *tsun* vessels.⁶³ Its presence on a handle is unusual, but not unknown in other bronzes.⁶⁴ The presence of crested birds surmounting the two posts, in place of the customary nipple- or bottle-shaped caps, is even more unusual, although again not without parallel. For example, a *chia* of late Shang or early Chou date, with more elaborately crested birds as terminals, is in the Sumitomo Collection.⁶⁵ Bird caps are also known on An-yang vessels, although they are simpler in form.⁶⁶ A vessel lid in the Musée Guimet, Paris, reportedly found at Ch'ang-sha in Hunan Province, is surmounted by a single bird that bears a general resemblance to these, although it is more complete with drooping tail, legs, and claws.⁶⁷ This lid also has flanges like those. These points of similarity suggest the possibility of a southern provenance for the present *chia*.

TECHNICAL OBSERVATIONS

The vessel is cast but some aspects of fabrication are puzzling. Mold marks along the flanges indicate that it was cast in a three-piece mold. Two of the divided flanges are cast as one with the vessel, but the other three apparently are precast and the vessel is cast to them. When the lower end of the pre-cast flanges are scraped and laid bare, the seams can

⁶³ See, in particular, a *tsun* in the Sumitomo Collection, Sumitomo (1921-26) 31, judged there to be a Han or later vessel; or a *p'ou* in the Shanghai Museum, Mizuno, *In-shū* . . . plate 19D, a vessel that agrees with ours also in the design of the flanges.

⁶⁴ See, Huang Chün, *Yeh-chung*, III/A, a *chia*; or No. 22.

⁶⁵ Sumitomo, *Sen-oku* . . . , No. 88.

⁶⁶ Umehara, *Kanan anyō* . . . , Pl. XXXIV and LII.

⁶⁷ Speiser, *The art of China*: . . . , p. 47.

be seen; but along the sides of the flanges where they join the vessel the seams are hard to follow. The joins are flush, and in only two or three places is there any spill-over of metal from vessel to the flange. On the inside, directly opposite each floating flange, is a vertical low ridge or thickening as if to provide proper anchorage for the flanges. Mold marks show plainly along the inside of the hooks of both types of flanges, but not at all on the outer flange edges. The alloy of the precast flanges is yellower than the body metal, which is reddish. No chaplets were seen.

Unlike the flanges, the handle was cast on to the vessel after the latter was finished because at the joins the handle metal plainly laps over on to the vessel metal. The two decorated bosses on the inside opposite the upper handle join and the irregular patch of metal opposite the lower

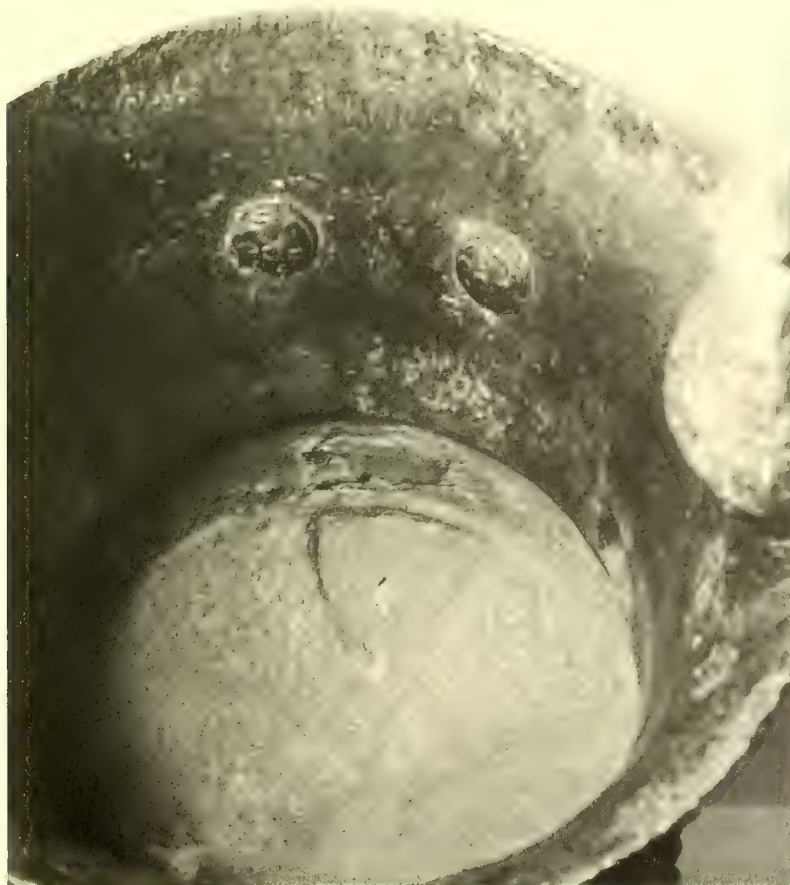


FIGURE 15

NUMBER TWENTY-ONE

handle join indicate the handles were cast through prepared holes in the vessel side and locked in when the metal solidified (*fig. 15*). The handle is channeled inside and still holds remnants of the original clay core. The handle and its flange are cast integrally.

Two of the triangular legs which are cored with hard clay are cast as an integral part of the vessel. Inside the vessel bottom are two triangular openings leading directly into the leg cores. One leg (to the right facing the handle) has been repaired with a solid cast-on tip, apparently to correct a faulty casting. Composition of the alloy of the cast-on tip is: Cu 93.6%; Sn 3.3; Pb zero; Total 96.9. The melting point of the metal used for the repair, because of its low tin content, is much higher than that of body metal. The third leg, the one to the left facing the handle, shows evidence of a seam where it joins the vessel. The X-ray reveals a peculiar and complicated structure here. There is a sort of metal core at



FIGURE 16

the top of the leg which was confirmed by probing the triangular opening on the inside of the vessel. This leg was probably added by the founder to complete another fault in the casting (see Vol. II, ch. IV).

The posts, which are solid, are cast as one with the vessel; but the bird finials are precast and joined on. The seam is not directly at the top of the post; but the post metal forms the flat underside of each bird, and the seam is around the lower edge of the bird's body. Running longitudinally under each bird is a prominent mold mark curved in the same degree of arc as that of the rim of the vessel (*fig. 16*). The feature may indicate, first that the posts served as pouring gates for the metal and secondly that the body core extended upwards and somewhat above the level of the stem openings. Each bird is cored with clay which is dark gray in tone like the clay contained in the two legs. Side view X-rays show that the two posts are capped with hemispherical domes much like the caps on *chüeh* and other *chia* and that the birds seem to sit on the domes. X-rays also show many blow holes and imperfections at the top of the posts which is further indication that the posts served as sprues.

The general all-over tone of the surface is dark greenish brown, like tarnished copper, but close examination shows extensive thin layers of genuine malachite and cuprite and some evidence of deep corrosion. Both of the bird-capped posts have at one time been broken off, each taking with it a wedge-shaped piece from the rim. These breaks as revealed by X-rays and partial cleaning have been repaired with soft solder and a pin, and the repairs concealed with paint and plaster. Where the joins are laid bare, the break seems to be clean and the birds truly belong to the vessel. The forward leg to the left facing the handle has been broken off and mended but not with soft solder. There is a note in the gallery records on this piece: "repaired by S. Mikami in 1929(?)."

Composition: Sample taken from underside of bottom.

Wet chemical analysis: Cu 82.3%; Sn 12.2; Pb 1.0; Total 95.5.

Additional elements estimated by emission spectrometry: Ag 0.01%; Fe 0.01; Co 0.001; Ni 0.001; Al 0.007; Mg 0.001; Mn <0.001; Si 0.07.

Chia

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of one character

Height, 41.0 cm. (16 $\frac{1}{8}$ in.)Width, 25.1 cm. (9 $\frac{7}{8}$ in.)

Weight, 9.10 kg. (20 lbs.)

Accession number 35.12

The main design of this strongly conceived rectangular vessel is a large *t'ao-t'ieh* on each side. Above are pairs of confronted *k'uei* dragons, and these in turn are topped by rising blades with cicadas. Thin segmented flanges mark the four corners and three sides. On the fourth side, the center is occupied by the handle topped by a monster head with rams' horns. The two outer sides of each leg combine to form a hanging blade with *t'ao-t'ieh* composed of two confronted dragons standing on their tails. The top is bordered with masks in intaglio alternating with triple chevron bands in relief; and two large *t'ao-t'ieh* back to back, both flanked by vertical dragons, decorate the cover. Most of the decorated area is covered with a fine *lei-wen* pattern both on the relief elements and the background. Serving as handle to the lid is a bird cast in the round and covered with scale-like feathers. The two uprights have elaborate caps, rectangular in section with constricted sides and "roof" tops. Each has miniature segmented flanges at the corners; and the sides are decorated with spiral bands and rising blades; two inverted *t'ao-t'ieh* are on top of each. Much of the surface is lustrous, and there are some areas of malachite encrustation and traces of cuprite and azurite.



NUMBER TWENTY-TWO (35.12)

NUMBER TWENTY-TWO

STYLE AND CHRONOLOGY

The square *chia* is a relatively uncommon type. An example lacking a lid, with the *t'ao-t'ieh* and other decor elements flush with the vessel surface, and decorated only sparsely with meanders so as to stand out against a denser ground of spiral filling, is in the Minneapolis Institute of Arts.⁶⁸ This piece and ours, the latter with its raised decor filled with fine spirals, set off from the texturally identical ground only by a difference in level, are good examples of what Loehr terms the Fourth Style and the "A" variety of the Fifth Style in the system of classification he proposes for the decor of An-yang bronzes.⁶⁹ According to this system, the Minneapolis piece would be somewhat the older of the two, a relationship indicated also by the increased emphasis on vertical flanges and other features of the Freer vessel.

Another square *chia*, in the William Rockhill Nelson Gallery of Art in Kansas City, was reportedly found at An-yang.⁷⁰ This also has a bird-shaped handle on a lid that is perfectly flat. The decor, far more plastic and in higher relief, suggests a date close to the end of the Shang period, while our piece is distinguished by the restraint and ideal proportions of what one might term the "classic phase" of Shang art. It is, as Umehara remarks,⁷¹ one of the very finest of the An-yang bronzes.

TECHNICAL OBSERVATIONS

The vessel proper, the legs, the handle, and the two capped columns are cast together in a piece mold. The principal mold divisions are along the vertical corner flanges, but there is also evidence of horizontal parting lines along the edge of the decorated rim and along the bottom edge of the body where the legs join the vessel. A mold mark shows prominently on the underside of each cap in line with the center flanges. The four legs are clay cored. Located about half way up the inside of each leg is an irregular hole which is filled solidly with crusty corrosion. It is

⁶⁸ Karlgren, . . . *Pillsbury* . . . , No. 12, Pl. 15.

⁶⁹ Loehr, "The bronze styles . . . ," pp. 47-48.

⁷⁰ Huang, *Yeh-chung* . . . , II/A/19-20, and Jung, *Shang chou* . . . , No. 460.

⁷¹ Umehara, *Kanan anyō ihō*, p. 51.

possible that these holes were made at time of fabrication to provide a connection between leg core and the inter-leg mold section. The caps and the square columns also have clay cores. The handle, channelled on the inside and partially filled with original clay core, emerges from the body without trace of a join or interference with the design. The lid is cast in two pieces; the small bird form handle is apparently fixed on by casting through two holes which coincide with the bird's feet and tail and are locked in place by decorated bosses on the underside (*figs. 17 and 18*). A large chaplet of reddish alloy was found on the inside bottom nearly opposite the center of a leg. There is evidence that similar chaplets exist in the other corners. The casting is of very high quality with perfect register of the fine decor as well as the broad elements of the design.



FIGURE 17

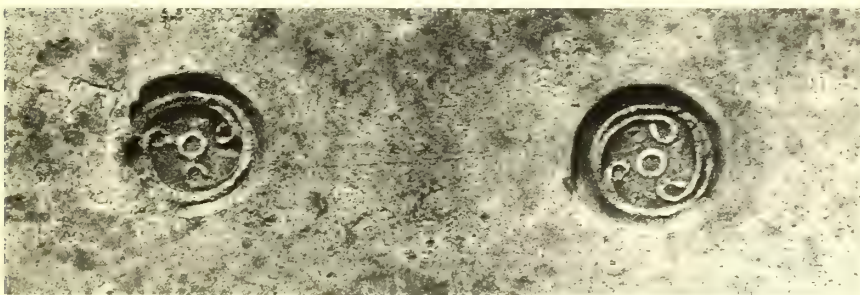


FIGURE 18

NUMBER TWENTY-TWO

The area of the inscription is slightly elevated and is framed with shallow grooves which may indicate that the mold for the character was a separate block set into the mold (*fig. 19*).

The gray-green color of the smooth patina reflects the high lead and tin content of the bronze. Under the microscope ghosts of the dendritic crystalline structure of the cast metal show on the broad rim. Thin patches of malachite and some azurite are scattered all over the surface and some clay residues mixed with cuprite are lodged in the finer grooves of the design. In ultraviolet light much of the surface, especially on the side with the handle, shows mottled patches of greenish fluorescence which are areas that have been touched up with light green paint. This paint was added presumably while the object was in the trade to make the coloring more uniform. Microscopic examination shows that the paint contains particles of the modern pigments Paris green and synthetic ultramarine, and it is blended so perfectly into the natural corrosion products that it is quite impossible to detect visually even with aid



FIGURE 19

of the binocular microscope. There is a fissure part way across one leg, otherwise the vessel is in good condition.

Composition: Sample taken from underside of handle.

Wet chemical analysis: Cu 75.1%; Sn 15.6; Pb 9.5; Total 100.2.

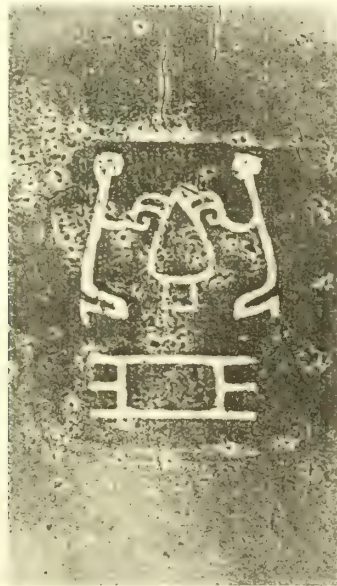
Sample from capped column: Cu 76.8%; Sn 14.3; Pb 8.8; Total 99.9.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.04; Co 0.004; Ni 0.03; Bi < 0.03; Cr 0.002; Mg < 0.001; Mn < 0.001; Si 0.01.

Sample from capped column: Ag 0.08%; Fe 0.05; Co 0.003; Ni 0.05; As 0.1; Sb 0.01; Cr < 0.001; Al 0.003; Mg < 0.001; Si 0.02.

INSCRIPTION

The inscription located on the inside bottom of the vessel is cast-in. It comprises two kneeling men facing one another with their arms extended and touching the upper section of an object. The object appears to be a representation of a *fang-i*. Below is a drawing which is probably a representation of a shield. There are a number of vessels inscribed with this particular clan sign.



Chüeh

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of one character

Height, 19.7 cm. ($7\frac{3}{4}$ in.)

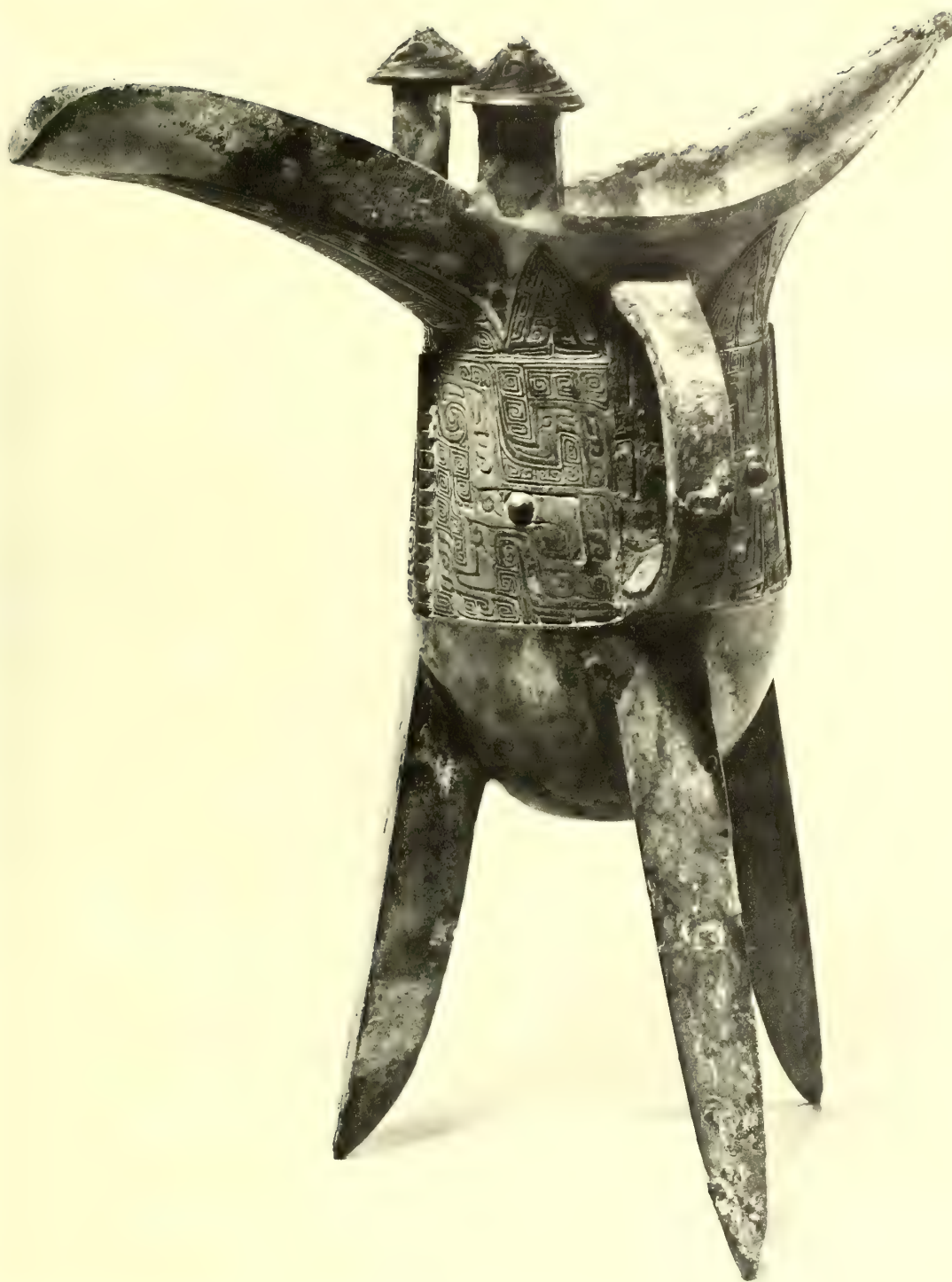
Width, 16.8 cm. ($6\frac{5}{8}$ in.)

Weight, 0.74 kg. (1 lb., 10 oz.)

Accession number 56.19

Two *t'ao-t'ieh* with fine *lei-wen* filling make up the main decorative band cast in very flat relief except for the boldly protruding eyes. Three thin segmented flanges divide the zone into quarters with the inscribed panel under the handle serving as the fourth. Above this area are seven rising blades of varying heights conforming to the curve of the lip and length of the spout.

The uprights have cone-shaped caps with spiral whorls cast in intaglio. A smooth, gray-green patina covers the whole surface; and the fossae of the design are filled with a reddish substance; some areas of malachite encrustation remain.



NUMBER TWENTY-THREE (56.19)

NUMBER TWENTY-THREE

STYLE AND CHRONOLOGY

Examples of *chüeh* found at An-yang exhibit a wide range of shapes and decor types; and the only attempt made so far to correlate these variations with stratigraphic evidence, since it dealt with a special group of vessels, casts little light on the problem of chronological relationships among existing examples of the *chüeh* form.⁷² The earliest types can be identified with some assurance (see notes on No. 27) as can a few early Chou examples; it is the development through the later part of the Shang dynasty that is unclear. The shape of the present *chüeh* is enough like that of pieces from Hsiao-t'un to permit us to assign it to the An-yang period;⁷³ the flush *t'ao-t'ieh* with simple raised bumps for eyes, and the relatively subdued flanges, all point to a date around the middle part of that period, thus agreeing with Mizuno's typology for the *chüeh*.⁷⁴

TECHNICAL OBSERVATIONS

Like others of this type, the vessel is cast in one piece in a piece mold; mold marks show faintly along the flanges, under the capped columns; and they form, with the handle, a sort of rectangular cartouche for the inscription (*q.v.*). The surface within the inscription rectangle is rough cast, but the adjacent decor areas are highly polished. The channel of the thin-walled handle is filled with reddish brick-like mold core material. A tiny metal post or pin, about 1 mm. in diameter and 2 mm. long, projects from inside the handle. As in the inscriptions on some of the other Shang bronzes, the edges of the characters are raised, indicating they were formed by pressing an instrument or die into a plastic substance. One side of the leg under the handle near where it joins the body has a small oval depression about 1 cm. long, as if metal had shrunk locally on cooling. Much of the surface is smooth, but corrosion is deep and the all-over layer of tin oxide is fairly thick. The uniform layer of dark green

⁷² Li Chi, "Yin-shang shih-tai . . .," P. XV and XVI. Li Chi treats only the *chüeh* on which ornamentation is limited to the simplest raised-line "bowstrings," and although he arranges a group of twelve of these into four chronological stages, no clear pattern of development in shape emerges in his findings.

⁷³ Li Chi, *The beginnings . . .*, Pl. XLVIII, left.

⁷⁴ Mizuno, *In shü . . .*, Typological Chart, under "Middle An-yang Period," the drawing is evidently based on his Pl. 36A, where, however, it is dated to the late An-yang period. The piece bears an inscription related to ours by the presence of an inverted human figure; see *op. cit.*, fig. 70J.

NUMBER TWENTY-THREE

malachite in the interior walls is crossed with a mesh pattern of cracks, which suggests that the green was in a gel state before it hardened. Fossae of the design are partially filled with fine sandy earth, and this is covered locally with copper mineral products and black carbonaceous film. There is no evidence of ancient repairs or of modern paint or touch up.

Composition: Sample taken from underside of bowl.

Wet chemical analysis: Cu 80.8%; Sn 13.7; Pb 3.5; Total 98.0.

Additional elements estimated by emission spectrometry: Ag 0.05%; Fe 0.07; Co 0.01; Ni 0.01; Sb 0.01; Bi 0.06; Cr 0.002; Mg 0.002; Mn < 0.001; Si 0.03.

INSCRIPTION

The inscription cast-in on the handle core-extension surface comprises a “foot,” a “decapitated man” and a graph which is the opposite of *ch'ih* “crawl” (cf. No. 10). It was inverted probably in error during the process of mold assembly prior to the casting of the vessel.



Chiieh

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of three (?) characters

Height, 23.2 cm. ($9\frac{1}{8}$ in.)

Width, 18.7 cm. ($7\frac{3}{8}$ in.)

Weight, 0.96 kg. (2 lbs., 2 oz.)

Accession number 54.15

Two very bold *t'ao-t'ieh* masks make up the main band of decoration; they are separated by flanges, and the central flange on the off side is balanced by the handle opposite. The usual rising blades of varying heights top this zone; and there are small bands of *lei-wen* around each cap. Some areas of plain metal show through the smooth gray-green patina, and there are considerable areas of cuprite and malachite encrustation.



NUMBER TWENTY-FOUR (54.15)

NUMBER TWENTY-FOUR

STYLE AND CHRONOLOGY

A *chiieh* virtually identical in design, except for narrower flanges and nipple-shaped instead of “bottle-shaped” caps topping the posts, has been published by Umehara.⁷⁵ The shape, as Umehara remarks, is standard; the *t'ao-t'ieh*, rendered plastically with broad, unornamented surfaces and raised above a *lei-wen* ground, all suggest the date to which we have assigned the vessel.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece by direct casting in a piece mold with the main join running vertically through the spout and pointed lip. Mold marks show plainly under each capped post in the line with the exterior flat side of the post (*fig. 20*). Small irregular depressions at tops of the



FIGURE 20



FIGURE 21

legs where they join the body may indicate location of horizontal mold joins sometimes found on vessels of this type. Mold marks show also on tops of the flanges and faintly on the left side of the handle. The cicadas under both spout and lip lack symmetry because of poor register of the

⁷⁵ Umehara, *SKS/J*, III/219; in “a Private Collection.”

mold segments. Residues of the clay mold still fill the channel of the handle. The edges of the characters are slightly raised as if the characters had been pressed into the mold (*fig. 21*) while the clay was in the plastic state.

Much of the surface is covered with smooth, green-stained, tin-oxide patina, in which dendritic crystalline structure of the bronze metal shows plainly at $\times 30$ magnification. Other areas are deeply corroded and covered with eruptive patches of cuprite and crystalline atacamite. The intaglio is partially filled with earthy residues, cuprite, and a black substance which seems to be corrosion product, not inlay. A metal insert which looks more like an ancient repair than a chaplet shows low inside the spout. There is no evidence of modern repair.

Composition: Sample taken from bottom of flange opposite handle.

Wet chemical analysis: Cu 82.5%; Sn 15.4; Pb 0.9; Total 98.8.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.2; Co 0.02; Ni 0.03; As 0.3; Sb 0.2; Bi 0.05; Cr 0.003; Mg 0.001;

Mn < 0.001; Si 0.03.

The tin content of the alloy is in the middle range, but the lead is low.

INSCRIPTION

Three characters are cast-in on the handle core-extension surface: *tso* “made,” *fu-hsin* “Fu-hsin – posthumous appellation,” and a *ya-hsing* containing what appears to be the character *t’ien* “Heaven.” The latter graph is a clan sign and no doubt represents the subject omitted before the verb “made.” An identical vessel with the same inscription is in the Seattle Art Museum (ch.6.77).



Chüeh

Shang dynasty (late An-yang, 11th century B.C.)

No inscription

Height, 25.1 cm. ($9\frac{7}{8}$ in.)Width, 22.5 cm. ($8\frac{7}{8}$ in.)

Weight, 1.11 kg. (2 lbs., 7 oz.)

Accession number 25.3

The relatively large, deep bowl and short legs of this *chüeh* make for a heavier look than is usual in vessels of this class; but this is compensated by the somewhat higher angle of the spout which saves the over-all effect from dullness. A band of *lei-wen* with two *t'ao-t'ieh* masks make up the main design, and rising blades set all around below the rim in varying heights conform to the curve of the lip. Small but strong flanges with deeply scored segmentation are placed vertically on three sides; and the space under the handle where the inscription is usually placed is left blank. A smooth, olive-green patina with some bluish areas covers the whole vessel.



NUMBER TWENTY-FIVE (25.3)

NUMBER TWENTY-FIVE

STYLE AND CHRONOLOGY

The *t'ao-t'ieh* mask on this *chiieh* has the same essential character as those on the *chia* Number 22, the *ku* Number 8, and a number of other vessels in the collection. That this style was current in the An-yang period is evident from its occurrence on a number of the bronzes excavated there;⁷⁶ that it appeared late in the period is indicated by its association with typologically Late Shang vessels; such as the *ku* cited above. The cup-shaped bottom of the present example also points to a Late Shang date, as do the prominent flanges extending along the underside of the spout and the pointed extension of the lip opposite it. The shallow grooves on the two inner faces of each leg may be seen also on *chiieh* excavated at An-yang; in some examples the grooves are much deeper, producing legs T-shaped in section.⁷⁷

TECHNICAL OBSERVATIONS

The vessel is cast in one piece probably by direct casting in a two-piece mold. The surface is so highly finished that only vestiges of mold marks show along the main axes. The legs, which are cast solid, are grooved on either side, the grooves being deeper where they join the body, presumably because of shrinkage in the metal. The handle is cast as one with the vessel; it is channeled on the inside, but little core clay remains in the channel. There is a distinct join trace between the ears of the animal head atop the handle, but this join line does not continue through the leaf-blade decor above it. Both posts are indented below the knobs which is also probably caused by shrinkage of metal after casting. A repair patch with sprue ridge on the outside fills a casting flaw in the vessel bottom. There is another old repair in the sidewall opposite the handle. No chaplets are visible.

The vessel is covered all over with a fine, olive-green, copper-stained, tin-oxide patina. The corrosion is quite deep which has caused some of the sharp edges to crumble and to look eroded. There is little eruptive corrosion.

⁷⁶ Li Chi, . . . *the bronze ku* . . . , Pl. XXIX–XXXIII; also *The beginnings* . . . , Pl. VI, a *fang-i*.

⁷⁷ Li Chi, “Yin-shang shih-tai . . . ,” Part I, Pl. XIV and fig. 4, p. 39.

NUMBER TWENTY-FIVE

In addition to ancient repairs, there are modern repairs at the ends of two of the legs where corrosion has caused tips to break off. The repairs here have been made with gypsum plaster, and the replacements are painted to match the natural patina. The repairs are easily visible in ultraviolet light.

Composition: Sample taken from under handle.

Wet chemical analysis: Cu 80.5%; Sn 12.7; Pb 5.0; Total 98.2.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.02; Co 0.008; Ni 0.09; As 0.2; Bi < 0.03; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.06.

Chio

Shang dynasty (late An-yang, 11th century B.C.)

Inscription under handle

Height, 22.5 cm. ($8\frac{7}{8}$ in.)

Width, 15.5 cm. ($6\frac{1}{8}$ in.)

Weight, 1.22 kg. (2 lbs., 11 oz.)

Accession number 53.83

This libation vessel may be termed a *chio* by virtue of the fact that the sides are symmetrical; the typical *chüeh* has a pointed lip on one end and a pouring spout on the other. Both lid and vessel are covered with *t'ao-t'ieh* dragon patterns and *lei-wen* in deep, bold intaglio. Three small segmented flanges divide the vessel into four parts with the handle and its bovine head forming the fourth divider.



NUMBER TWENTY-SIX (53.83)

NUMBER TWENTY-SIX

STYLE AND CHRONOLOGY

The symmetrically shaped *chio* exists in several variant shapes; but these do not appear to have any significance in dating. The example belonging to the Pao-chi (or “Tuan-Fang Altar”) set now in the Metropolitan Museum, New York, associated with vessels generally dated to the early Chou dynasty, has a bulbous body that one might take to be characteristic of the period;⁷⁸ but so has the well-known piece in the Holmes Collection, its lid rendered as a bird with outstretched wings, a vessel which both in decor and inscription would appear to belong to the Shang period.⁷⁹ Closer in shape to ours are the *chio* in the Sumitomo Collection⁸⁰ and the Mount Trust, England,⁸¹ along with another of which a drawing is reproduced without identification by Mizuno.⁸² The first and third of these are dated to the early Chou period by Umehara and Mizuno, respectively, while the second is labeled “12th–11th cent. B.C., Shang dynasty” by Watson. The flanges on our piece, unbroken but with straight lines and L-shaped markings alternating on their surfaces, along with the style of the *t’ao-t’ieh* mask, indicate a date in the Shang dynasty, which agrees with the character of the inscription.

TECHNICAL OBSERVATIONS

The vessel and handle are cast together apparently in a piece mold with principal joins along the major axis. One of the legs shows a shrinkage depression, not in the usual position where it joins the body, but part way down the leg face. The handle is channeled and filled with reddish core residue. Two of the legs are affixed with soft solder, apparently recent repairs, which are confirmed by X-rays (see Vol. II, ch. X). The soldered join is well concealed with paint which closely imitates the color and texture of blue and green copper corrosion products. The repair area is revealed by a pinkish fluorescence when the object is seen in ultraviolet light. The paint contains ground malachite mineral and

⁷⁸ Umehara, *Henkin . . .*, Pl. XVII, No. 2.

⁷⁹ Karlgren, “Yin and Chou . . .,” Pl. X, No. A170.

⁸⁰ Sumitomo, *Sen-oku . . .*, 86.

⁸¹ Watson, *Ancient Chinese bronzes*, Pl. 11b.

⁸² Mizuno, *In shū . . .*, Typological Chart, under “Early Western Chou.”

synthetic ultramarine. The loop on top is cast as one with the lid. There are no signs of chaplets on either vessel or lid. Much of the surface has a leaden color which is mottled here and there with malachite. There are also scattered patches of azurite, cuprite, and earthy residues.

Composition: Sample taken from underside of bowl.

Wet chemical analysis: Cu 76.3%; Sn 15.3; Pb 6.9; Total 98.5.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.5; Co 0.01; Ni 0.03; As 0.3; Sb 0.1; Bi 0.06; Cr 0.002; Mg 0.003; Mn 0.002; Si 0.03.

INSCRIPTION

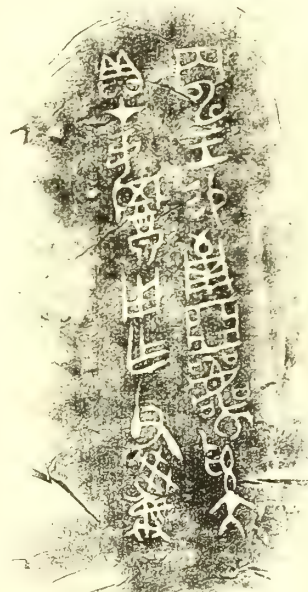
The inscription text may be translated as follows:

1. (On the day) *ping-shen* (the 33rd day of the cycle), the King awarded the Fu-ya officer, Fu Hsi
2. cowries (i.e. cowries from Hsi) at A. Therefore (Fu) made (for) Fu-kuei (this) sacrificial vessel.

Several of the characters are close in structure to Shang oracle bone forms.



COVER



VESSEL

Chiieh with cover and carved wood stand

Recent

Inscription of 13 characters

Height, 20.0 cm. ($7\frac{7}{8}$ in.)

Width, 17.2 cm. ($6\frac{3}{4}$ in.)

Weight, 0.99 kg. (2 lbs., 3 oz.)

Accession number 11.39

The main zone of decoration has the usual two *t'ao-t'ieh* masks in relief here without dividing flanges. Above this are two more *t'ao-t'ieh* in intaglio lines and a scroll pattern under the spout. On the outer surface of the legs are mask designs and hanging blades. The cover has an elaborate horned *t'ao-t'ieh* facing the back and a serpent on the part over the spout. This vessel belongs to the class with flat bases; it lacks the up-rights on the rim and the monster mask atop the handle. Most of the surface is a reddish cuprite with some areas of malachite encrustation and the whole thing has evidently been polished or waxed by Chinese owners in the past.

The original attribution was "Chinese, Shang"; and Mr. Freer's note at the time read, "Very beautiful and extremely rare. One of the most important pieces of the tripod form known to exist."



NUMBER TWENTY-SEVEN (11.39)

NUMBER TWENTY-SEVEN

STYLE AND CHRONOLOGY

This vessel presents a number of puzzling features. While most of these are not truly unique, they do not occur in quite the same combination on any other known piece.

The shape, first of all, is of fairly early origin. The earliest form of the *chüeh* is probably the squat, flat-bottomed, straight-legged variety of which two examples were found at Hui-hsien.⁸³ *Chüeh* of the stage that follows this have much in common with ours: the bottom still flat, the body generally cylindrical but broader in its lower half, legs tapered and flaring slightly outwards.⁸⁴ They do not, however, have lids; and the presence of posts at the juncture of spout and rim suggest they may never have had them. Also, the decor on these is more primitive, being of the type associated with early An-yang or pre-An-yang bronzes.

Two *chüeh* with decor of a later character offer closer parallels with our piece and suggest that this early shape persisted down to the Late Shang period. One, of similar shape and with a similar lid but with *t'ao-t'ieh* composed of densely packed spirals, has linear designs on the faces of the legs practically identical to those on ours.⁸⁵ The other, formerly owned by M. Shiohara, Tokyo, is even more intimately related. The cover is identical in form, and is decorated with the same relief design, consisting of a bottle-horned *t'ao-t'ieh* on the main area and a bovine mask at the opposite end, from which a serpent's body extends down the narrow portion above the spout. Both vessels have high-relief *t'ao-t'ieh* on their bodies; but they differ in important respects. For example, the upper lip of that on the Shiohara piece does not continue below the handle. Finally, the inscription on the Shiohara bronze (judging from an unclear reproduction) is identical in its text, and similar in script style, to ours.⁸⁶

⁸³ "Hui-hsien fa-chüeh pao-kao," Pl. XIII, Nos. 1 and 4; also Stephen, "Early Chinese bronzes . . .," fig. 1, and pp. 1-2.

⁸⁴ "Hui-hsien fa-chüeh pao-kao," Pl. XIII, No. 6, and Stephen, *op. cit.*, fig. 3.

⁸⁵ Karlgren, "New Studies . . .," No. 1179, Pl. LIV right, taken from *Tsun-ku-chai* . . . , IV, 1. For another example of a flat-bottomed *chüeh* with a design on its legs, see Mizuno, *In shü* . . . , Color Pl. 3.

⁸⁶ Umehara, *SKS/J*, III/230. Another closely related *chüeh* in the Hellström Collection, Karlgren, ". . . Hellström . . .," Pl. 7.

It is difficult to know what conclusions to draw from these inter-relationships, but the most likely one is that we have here a fabrication, for which the forger drew elements of form and decor from such pieces as those cited above. Doubt is thrown on it by a crudeness and heaviness in the casting, and by several mistakes and inconsistencies in the design: the failure of the legs to correspond properly with handle and mold joins; the extension of the upper lip of the *t'ao:t'ieh* below the handle; and a miscalculation in the size of the *t'ao-t'ieh* on the handle side, necessitating the omission of a minor element at the far right, near the point of junction with the left edge of the other *t'ao-t'ieh*.

TECHNICAL OBSERVATIONS

The body of the vessel appears to be cast from a two-piece mold assembly; mold marks show faintly downward from the tip of the spout and on the opposite side; and they show also on either side of the handle joins. The channeled handle is cast in one piece with the vessel, and remnants of the original clay core remain in the channel. The lid with its loop handle is cast in one piece, but there are no evidences of mold marks. There are no chaplets. The inscriptions are cast in. Where the *t'ao-t'ieh* meet along the long axes of the vessel elements of decor that are present on one side are missing on the other. The faces of the legs are decorated, which is unusual in vessels of this type.

The patina is made up mostly of hard and compact malachite and cuprite, but tin oxide is little in evidence. The area of the inside cover, which bears the inscriptions, is solid cuprite; this indicates that malachite, which originally encrusted the area, has been scraped away to reveal the inscription. The rim at the edge of the spout has two deep fissures and one leg is cracked near the join to the body. There is no evidence of paint or repairs.

Composition: Samples taken from edge of bottom.

Wet chemical analysis: Cu 83.5%; Sn 13.4; Total 96.9.

Additional elements estimated by emission spectrometry: Pb 0.03%;

NUMBER TWENTY-SEVEN

Ag 0.09; Fe 0.3; Co 0.001; Ni 0.02; As < 0.07; Bi 0.03; Mg < 0.001;
Si 0.005.

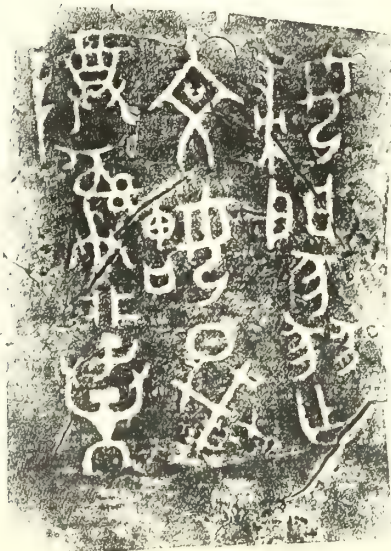
This is one of the few vessels in which lead is present only in a trace amount.

INSCRIPTION

The inscription which is cast both in the vessel and in the lid has been reproduced in various catalogues since 1854. It reads:

1. Fu-shih made (for her)
2. accomplished Aunt, Jih-kuei,
3. (this) honoured sacrificial vessel. Clan sign.

In a number of later appearing inscribed vessels this inscription text has been slavishly copied.



VESSEL



COVER



Detail of junction of two *T'ao-T'ieh* masks opposite pouring spout; note inclusion of extra decor element on right side

Ting

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of two characters inside

Height, 24.8 cm. (9 $\frac{3}{4}$ in.)

Width, 20.3 cm. (8 in.)

Weight, 3.40 kg. (7 lbs., 8 oz.)

Accession number 60.18

The almost hemispherical bowl rests on three straight legs that spread outward slightly from the vertical; and the two handles thicken slightly as they rise from the rim. Six vertical flanges surround the body alternately separating and splitting the three bold monster masks that comprise the main decoration. Gaps in the zoomorphic elements of the design are filled with *lei-wen*, and three pendent triangles with scrolls inside decorate each leg. On the body most of the intaglio lines are filled with corrosion products that show red against the smooth, gray-green patina. The casting is fine in quality; and, except for the flanges and the eyes, the surface is very smooth and flat.



NUMBER TWENTY-EIGHT (60.18)

NUMBER TWENTY-EIGHT

STYLE AND CHRONOLOGY

This vessel typifies in every respect the An-yang style, and could be said to represent a classic stage of Shang art, when an ideal balance reigned in both shape and decor. The *t'ao-t'ieh*, sober and coherent in design and with only the round eyes in relief, belongs to Loehr's "Fourth Style" in the An-yang sequence, and is in essential agreement with those on the *hu* excavated at An-yang, which he reproduces to illustrate that style.⁸⁷ The characteristic markings on the flanges, for instance, with straight lines and T's in alternation, appear also the outer edge of the horns of the *t'ao-t'ieh* on both vessels. The following stage, in which the *t'ao-t'ieh* is rendered in relief, may be seen in several *ting* that differ chiefly in this feature, being otherwise quite similar, even to the hanging blade patterns on the legs.⁸⁸ A very similar *ting* is reproduced among the vessels reportedly found at An-yang.⁸⁹

TECHNICAL OBSERVATIONS

The vessel was cast directly in one piece in a three-piece mold with main joins in vertical line with the legs. A mold mark shows plainly on the outside of one leg, but vestiges of other mold marks are seen also on the other legs and on the six flanges. The legs are cast with clay core and each leg shows half way up on the inside an irregular metal plug or patch which seals the opening into the core. On the vessel bottom there are areas of parallel scratches caused apparently by a rough finishing operation. Two chaplets are visible in the inter-leg area underside.

Smooth tin-oxide patina covers much of the surface of the legs and handles, but on the bowl much of it is abraded away to lay bare considerable areas of tarnished metal. Probably when first disinterred, the surface bore some fairly heavy crusts of copper minerals which were cleaned off. There are scattered small bright green, powdery patches of copper chloride minerals which, in addition to the heavy deposits of

⁸⁷ Loehr, "The bronze styles . . .," Fig. 13.

⁸⁸ Loehr, *op. cit.*, fig. 17, used to illustrate his "Fifth Style"; Watson, *Ancient Chinese bronzes*, Pl. 15a, formerly Burnett Collection; Mizuno, *In shū* . . . , Pl. 67, Art Institute of Chicago.

⁸⁹ Huang, *Yeh-chung* . . . , III/A/7.

cuprite, are evidence of bronze disease. Most of the lines of the intaglio design are filled with dull-red, crystalline cuprite. The level of the cuprite is below that of the metal, probably because it was less resistant to abrasion employed in the cleaning operation. Some of the fossae are entirely filled with earthy accretions. The grooves made by the single character inscription are also filled with cuprite, and the area around it has been so abraded for the purpose of uncovering the character that it is impossible to tell how it was formed. There are no breaks, losses or evidence of repairs.

Composition: Sample taken from a flange.

Wet chemical analysis: Cu 82.9%; Sn 13.6; Pb 2.8; Total 99.3.

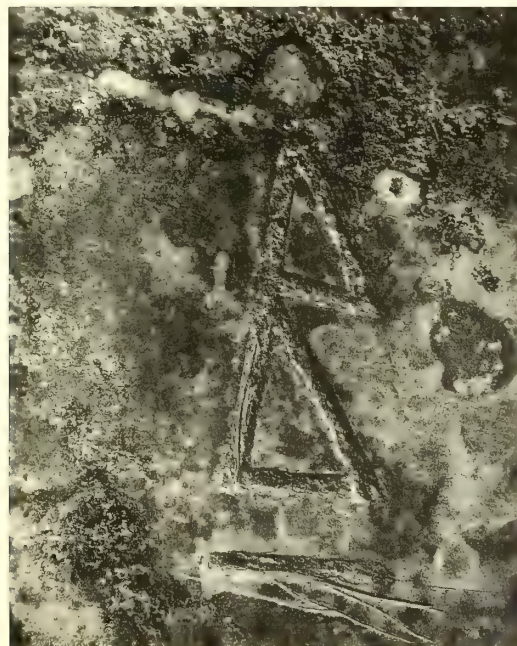
Additional elements estimated by emission spectrometry: Ag 0.07%;

Au < 0.01; Fe 0.1; Co 0.005; Ni 0.01; As 0.2; Sb 0.01; Cr < 0.001;

Al 0.001; Mg < 0.001; Mn < 0.001; Si 0.001.

INSCRIPTION

The single cast-in graph has not hitherto been reproduced in publication. It is probably to be equated with the modern graph *fou* “a large mound.”



Ting

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of four characters

Height, 20.7 cm. ($8\frac{1}{8}$ in.)

Width, 16.3 cm. ($6\frac{5}{8}$ in.)

Weight, 1.87 kg. (4 lbs., 2 oz.)

Accession number 59.15

The body of the vessel is covered with a network of rectangles in each of which an irregular arrangement of elongated *lei-wen* surrounds a stud. Above this, just below the thickened rim, lies a band of *k'uei* dragons arranged in double confronting pairs, each pair set off by a short segmented flange. The legs are plain. An even grayish-green patina covers the whole vessel; the fossae of the design are filled with black and some earthy encrustation remains.



NUMBER TWENTY-NINE (59.15)

NUMBER TWENTY-NINE

STYLE AND CHRONOLOGY

The pattern that covers the main surface of the bowl may be seen on a large number of Shang vessels, at least one of them excavated at An-yang.⁹⁰ A *ting* of similar shape with this pattern, but with simple flush circles in place of the studs, was also reportedly found at An-yang;⁹¹ another, more closely related to ours, is in the British Museum.⁹² The shape, with cylindrical legs and simple, rounded bowl, is standard for *ting* of this period, as are the dragons in the band just below the rim.

TECHNICAL OBSERVATIONS

The casting is done in one piece in a three-piece mold, with main joins running vertically in line with its legs. Poor register caused by mold section slippage is plainly visible (*fig. 22*). The three legs are hollow and filled with pale gray, finely grained clay core. There is no evidence of seam or join at juncture of legs to vessel. The underside is smooth and plain. Unlike many tripod vessels of this type, only one leg shows a faint trace of mold mark; the other legs are smooth. On the middle of the inside of each leg, however, there is a small depression which may be the location of an opening from the interior clay core. No chaplets are visible. The inscription appears to have been etched (*fig. 23*). The grooves have U-shaped cross-sections and ends, and the edges of the grooves are wavy and undercut. In the bottoms of the grooves the dendritic structure characteristic of etched metal can be seen. A light green material similar in appearance to tin oxide fills the grooves of the inscription, but rubbing with a wet swab removes this material easily, leaving shiny bronze dendrites. The inscription shows but faintly in a radiograph; this confirms the hypothesis that it was partly cut into the corrosion crust. In fact, the tin-oxide patina around the inscription extends out over the grooves slightly at a few points, also indicating that it was etched into the bronze after excavation.

⁹⁰ Li Chi, *Yin-shang shih-tai* . . . , Part I, Pl. IX, No. 325, a *ting* with bulbous body; Mizuno, *In shū* . . . , Pl. 25, a *kuei*, and Pl. 19D, a *p'ou* in the Shanghai Museum.

⁹¹ Huang, *Yeh-chung* . . . , III/A/11.

⁹² Watson, *Archaeology* . . . , Pl. 56.

Although there are scattered areas of tin-oxide patina, most of the patina is not distinguished. Microscopic examination shows that some of the blue is artificial; it is made of powdered azurite mineral applied as paint. The lines of the intaglio design are mostly filled with dark earthy

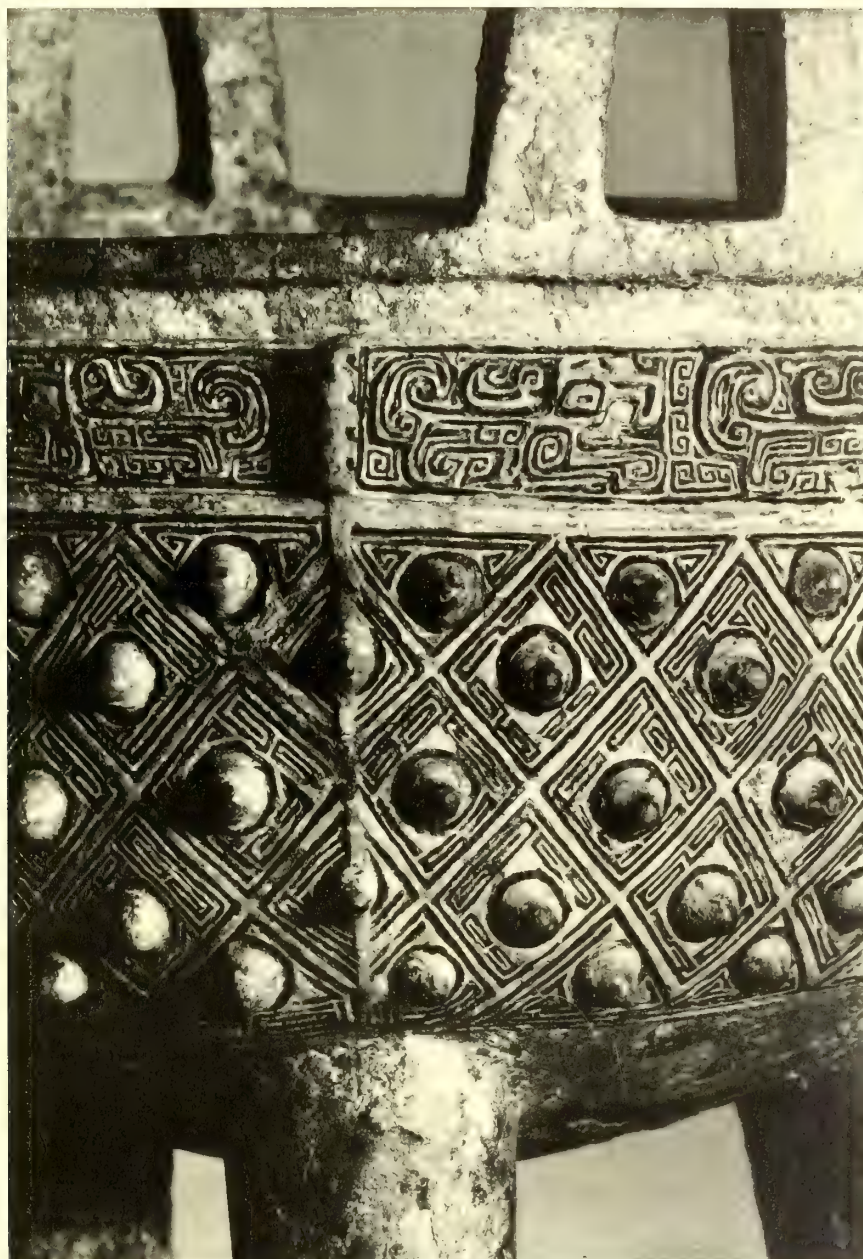


FIGURE 22



FIGURE 23

material; but on the surface, these lines have been reinforced with black paint or ink. Under low magnification, the brushed-in character of the surface black is easily seen. Interesting features are the ghosts of a fabric pattern that can be seen on two of the nipples. In burial the vessel perhaps was wrapped in silk or came in contact with silk fabric. There are no breaks, losses or repairs, except the small amount of paint touch-up already noted.

NUMBER TWENTY-NINE

Composition: Sample taken from underside of leg.

Wet chemical analysis: Cu 82.1%; Sn 12.0; Pb 6.1; Total 100.2.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.3; Co 0.01; Ni 0.03; As 0.2; Sb 0.02; Bi 0.03; Cr 0.003; Mg
<0.001; Mn <0.001; Si 0.1.

INSCRIPTION

The inscription is incised and obviously spurious. It comprises a graph functioning as a clan-sign and the posthumous appellation *Fu-wu*. The latter is, however, not only written in reverse as *Wu-fu*, but the characters in both cases are erratically executed.



Ting

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of one character inside

Height, 35.6 cm. (14 in.)

Width, 28.5 cm. (11¼ in.)

Weight, 10.21 kg. (22 lbs., 8 oz.)

Accession number 46.31

The large, strongly shaped bowl has two powerful handles rising from the lip. The principal decoration consists of a band of *t'ao-t'ieh* on a *lei-wen* ground. Beneath each *t'ao-t'ieh* and also beneath each intervening space is a pendent blade with a cicada in relief on a *lei-wen* ground. Around the sturdy legs are narrow scroll bands from which hang rows of pendent blades all executed in intaglio. The surface is covered with a light gray-green patina which has some areas of encrustation.



NUMBER THIRTY (46.31)

NUMBER THIRTY

STYLE AND CHRONOLOGY

No close parallel to this monumental vessel is known among surviving bronzes. The shape is one of those standard for *ting* in the An-yang period, and the hanging-blade patterns on the legs also occur frequently. The design of raised *t'ao-t'ieh* masks in the broad band below the rim, however, appears to be unique. *T'ao-t'ieh* not bisected by vertical flanges are rare on bronze vessels, although they are rather the rule in other media of Shang art;⁹³ and in the few cases in which they occur in this position on bronze *ting* tripods, they are found in combination with other motifs. On a *ting* in the Nara Museum; for example, they alternate with “whorl circles”;⁹⁴ in the case of a *ting* in the Sackler Collection, New York (S.89), there are only two large relief masks, set off by flanges on opposite sides of the vessel, with elephantine dragons occupying the other two quadrants. Both these vessels share with ours the hanging blades with cicadas in relief on the main area of the body, a relatively common motif on Shang tripods. The arrangement here, with one hanging blade directly below each mask and another midway between each pair, contributes to the impression of stability, order, and strength.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece from an alloy relatively low in tin and much below average in lead for this class of bronze. It was made apparently in a three-piece mold with the main joins running vertically through the center lines of the legs. Mold marks of the legs continue vertically up through the design on the bowl and divide the nine *t'ao-t'ieh* masks into groups of three. At the point where the join bisects a cicada, one of these marks is especially prominent because of poor register (*fig. 24*). Each mask and cicada varies in size and detail, giving evidence that the design is entirely hand worked. The *lei-wen* pattern which fills in the background between the *t'ao-t'ieh* masks is uneven in width and

⁹³ For examples in bone carving, see Umehara, *Kanan anyō ihō*, Pl. LXXIII, LXXVII, LXXIX; in marble, *op. cit.*, Pl. LXVI, and *Kanan anyō . . .*, Pl. XXIX; for jade, *op. cit.*, Pl. XXIII and XXV; for white pottery, *op. cit.*, XVII.

⁹⁴ Umehara, *SKS/J*, III/177. Another *ting* with this feature is in the Virginia Museum of Fine Arts Richmond, Virginia (57.45.9).



FIGURE 24

also varies in detail. The handles are solid and are cast integrally with the vessel. The legs are clay cored, and the inside surface of each leg bears an irregularly shaped metal patch or plug, which appears to be a contemporary repair to conceal a hole or vent leading into the clay core (*fig. 25*).



FIGURE 25



FIGURE 26

These holes may also indicate the location of connecting members of mold that were set between leg cores and the central core. The hanging-blade decor of the legs is continued over the patches. One of the legs has a ridge on the bottom which may be the stump of a pouring sprue. There is evidence of chaplets in the inter-leg area underside; but they are nearly fused and partially concealed by corrosion.

The bowl surface inside is covered with a thin crusty patina of mixed azurite, malachite, and cuprite. On the exterior much of this crust has been chipped off to expose the more or less uniform tin-oxide patina beneath (*fig. 26*). Earthy residues partially fill some of the fossae.

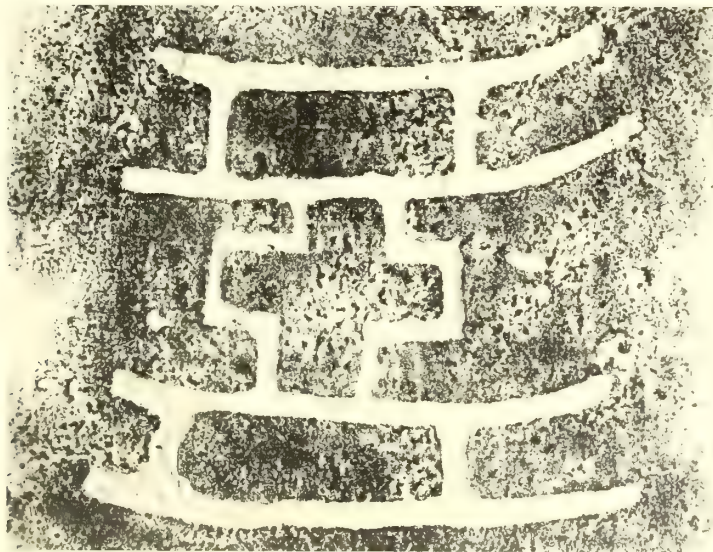
Composition: Sample taken from bottom of leg centered between two handles.

Wet chemical analysis: Cu 86.0%; Sn 9.7; Pb 0.4; Total 96.1.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.5; Co 0.008; Ni 0.02; Sb 0.01; Bi < 0.03; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.04.

INSCRIPTION

The single graph inscription which is cast is published here for the first time. It cannot be identified.



Ting

Shang dynasty (late An-yang, 11th century B.C.)

Inscription of one character inside

Height, 21.9 cm. ($8\frac{5}{8}$ in.)

Width, 18.1 cm. ($7\frac{1}{8}$ in.)

Weight, 2.64 kg. (5 lbs., 13 oz.)

Accession number 47.11

The bowl of the vessel is tri-lobed to a moderate degree which might justify a classification of *li-ting*. The main design consists of three bold *t'ao-t'ieh* centered on segmented flanges which lie above the legs. Above this are three pairs of confronted dragons centered on small flanges lying between the legs. Both zones are heavily covered with *lei-wen*. The legs are decorated as in the previous vessel. The pale green-gray patina shows some areas of encrustation.



NUMBER THIRTY-ONE (47.11)

NUMBER THIRTY-ONE

STYLE AND CHRONOLOGY

The strong, fully integrated *t'ao-t'ieh* masks in relief, and the prominent flanges, are elements of the late Shang style. Aside from their plastic treatment, the *t'ao-t'ieh* are very similar to those on the *ting* Number 28, but have been compressed to accommodate the band of dragons above; the horns of the masks are thus forced into a horizontal position. The designs on the legs of the two vessels are also similar.

Several examples of the *li-ting* tripod were reportedly found at Anyang,⁹⁵ but they were simpler in design and lacked flanges. *Li-ting* with flanges are less common; other examples include those in the Heinrich Hardt Collection, Berlin,⁹⁶ the Oeder Collection,⁹⁷ and the Nelson Gallery (35.250).

TECHNICAL OBSERVATIONS

The object was made in a single piece by direct casting in a three-piece six-division mold with true joins in vertical line with the legs. There are no traces of mold marks except vertically along the legs where the two halves of the design register poorly, and by the uneven dentils along opposite sides of the flanges. The legs are cast hollow with brick-like core. Each leg shows on the inside an irregularly shaped metal plug used to conceal openings into the clay core that were caused presumably by spacers to keep the inter-leg core in position. Three chaplets are symmetrically located in the bottom. There is no evidence that the inscription was incised in the cold bronze; but in this case the possibility remains that it may have been etched with acid. The surface of the metal in the grooves of the characters is metallic and only faintly tarnished – not heavily encrusted. The corrosion layer is not continuous down into and across the fossae but appears to terminate abruptly at the edge of the stroke suggesting that at this point the original natural corrosion layer has been interrupted.

Most of the outside surface is covered with smooth, gray-green, tin-

⁹⁵ Huang, *Yeh-chung* . . . , I, A, 11 and 12; III, A, 9.

⁹⁶ Umehara, *SKS/E*, II/90.

⁹⁷ Karlgren, "New Studies . . . ," Pl. X, No. 254. See also No. 248, same plate.

oxide patina, but the thin and even encrustation of malachite on the underside and on the inside indicate that much of the surface of the vessel was originally covered by this green mineral. The adherent green can be flaked off with a blunt chisel to reveal the smooth surface beneath. The black filling in the fossae of the design appears to be intentionally put into the grooves as a sort of inlay. It is soft and fine-grained, and is made up chiefly of finely divided quartz particles mixed with cuprite and some dark carbonaceous material. There is no evidence of repair, old or new, and no breaks or losses.

Composition: Sample taken from underside of one leg.

Wet chemical analysis: Cu 79.6%; Sn 13.8; Pb 3.1; Total 96.5.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.10; Co 0.002; Ni 0.01; Bi 0.03; Cr 0.002; Mg 0.001; Si 0.02.

INSCRIPTION

Although there are a few published inscriptions with the combination of *ko* (dagger axe) and *erh* (ear), our particular example appears here for the first time. It is incised (or etched?) on the *yin* side of the vessel. It is a forgery.



Ting

Recent

Inscription of three characters in one side

Height, 22.9 cm. (9 in.)

Width, 16.8 cm. (6 $\frac{5}{8}$ in.)

Weight, 2.32 kg. (5 lbs., 2 oz.)

Accession number 11.41

The vessel is executed in the customary *ting* style with three slightly swelling areas above the legs placing it in a class sometimes known as *li-ting*. The monster masks above the legs and the incised pattern on the surface are all extremely poor in quality. The brownish-gray metallic surface has areas of green encrustation. Mr. Freer noted that the piece had an unusual color and was imperfect but added that it was "said to be an ancient specimen." It came from Li Chiao San of Shanghai.



NUMBER THIRTY-TWO (11.41)

NUMBER THIRTY-TWO

STYLE AND CHRONOLOGY

In its shape and the placement of the *t'ao-t'ieh* masks, this tripod is based on vessels of the classical An-yang style. The rendering of the decor, however, shows such a complete lack of understanding of early bronze style as to suggest that the copyist depended on crude woodcut pictures rather than on any knowledge of early bronzes. Designs of the kind he may have copied are to be seen in later editions of the Sung catalogues, such as the *Po-ku t'u-lu*⁹⁸ and the *K'ao-ku t'u*.⁹⁹

TECHNICAL OBSERVATIONS

The vessel, including the handles and legs, is cast in a single piece. The legs are hollow and filled with a blackish earthy material. There are no visible mold marks. The main features of the decor are cast, but the shallow, sunken line decor has a peculiar appearance as if it were traced or etched into the surface. Many of the finer lines are not continuous but are interrupted as if mechanically worked (*fig. 27*). In some areas the decor is thin, almost vanishing. A shallow Y-shaped groove on the underside, which connects the three legs, seems to simulate the ridges often found on other vessels of the type. The evidence in general indicates the vessel was cast by the *cire-perdue* method. The characters of the inscription have ragged edges suggesting they may have been chiseled or pecked into the surface.

The patina is mostly false. It is made of a sort of thick paint which contains coarse particles of ground malachite. The paint easily chips away from the surface.

A series of radiographs of the entire vessel was taken which confirm the hollowness of the legs, show details of the decor in great contrast, and reveal the presence of several casting flaws. One radiograph shows very well the contact between the core of one leg and the vessel wall.

Composition: Sample taken from rim near one handle.

Wet chemical analysis: Cu 72.7%; Sn 17.9; Pb 9.4; Total 100.0.

⁹⁸ Edition of 1752, ch. I, p. 41 or 48.

⁹⁹ Ch. I, p. 17.



FIGURE 27

Additional elements estimated by emission spectrometry: Ag 0.09%;
Fe 0.03; Co 0.02; Ni 0.03; As 0.1; Sb 0.03; Bi 0.03; Zn 0.05; Mg
<0.001; Si 0.005.

The presence of a detectable amount of zinc is noted.

INSCRIPTION

The inscription comprises a clan sign consisting of a *ko* (dagger axe) from the blade of which two objects are hanging, and the posthumous appellation *fu-kuei*. Details of the calligraphy indicate that this inscription was copied from the earlier editions of one of the Sung catalogues.



Ting

Early Chou dynasty, (late 11th – early 10th century B.C.)

Inscription of three characters inside

Height, 16.5 cm. ($6\frac{1}{2}$ in.)

Width, 15.0 cm. ($5\frac{7}{8}$ in.)

Weight, 1.19 kg. (2 lbs., 10 oz.)

Accession number 46.4

The rather squat appearance of this *ting* is accounted for by the fact that the bowl is wider near the bottom than it is at the top. The only decoration is a single band of three pairs of confronted long-tailed birds facing flanged escutcheons in the center of each side between the legs. The whole thing is covered with a smooth, grayish-green patina with minor areas of encrustation.



NUMBER THIRTY-THREE (46.4)

NUMBER THIRTY-THREE

STYLE AND CHRONOLOGY

In the typological series for *ting* tripods prepared by Mizuno,¹⁰⁰ a drawing of a similar *ting* is used to represent the “middle Western Chou” period, i.e., the late tenth or early ninth century. He gives no reasons for his dating, nor does he identify the piece, but it would appear to be the *yü-(?) ting*,¹⁰¹ a vessel closely related to ours in both form and decor. Karlgren places it in a group of bronzes datable only generally by their inscriptions to the early part (i.e., the first 175 years) of the Chou dynasty,¹⁰² but Kuo Mo-jo dates it, from evidence in the inscription, in the reign of King Mu (947–928), and although Kuo’s criteria are not as firm as one might wish, his dating seems to agree with the style of the vessel. In shape, it appears to precede the stage represented by a *ting* in the British Museum¹⁰³ on which the curved outer profile of the legs is transitional towards the cabriole legs of Middle Chou and later vessels, and the long-tailed birds of the decor band have turned into the S-shaped “dragons” also characteristic of a later style. This *ting* is dated by Watson to the mid-tenth century, but might be somewhat later. The cylindrical legs on ours, by contrast, still retain the Shang form, and the treatment of the birds is an outgrowth of the more naturalistic, coherent rendering of the same motif on vessels of the early Chou period.¹⁰⁴

The closest parallels to these birds are on vessels that seem typologically to belong to the tenth century, such as a *yu* in the Sumitomo Collection¹⁰⁵ and a *kuei* in the British Museum,¹⁰⁶ on which the heads of the birds are turned back. Another *kuei*, the Fu-shih-li *kuei*¹⁰⁷ has a band of birds matching ours even more closely. This is dated by Kuo Mo-jo, on the basis of its long inscription, to the reign of King Li (857–828).

¹⁰⁰ Mizuno, *In shū* . . . , pp. 19–21.

¹⁰¹ Lo Chen-yü, *Meng-wei* . . . , hsü 6.

¹⁰² Karlgren, “Yin and Chou . . . ,” B 49, Pl. IV and p. 37.

¹⁰³ Watson, *Ancient Chinese bronzes*, 46b. Another *ting* of this stage is in the Sackler Collection, New York (S.4). It bears an inscription similar in script style to that on 46.4, but reading simply *tso pao-ting*.

¹⁰⁴ E.g. the *fang-i* No. 38 lowest band; the *yu* No. 50 and No. 53; the *fang-tsun* No. 17.

¹⁰⁵ Sumitomo, *Sen-oku* . . . , No. 63; for the dating, cf. No. 58.

¹⁰⁶ Watson, *Ancient Chinese bronzes*, 42b, dated by him “late 11th–early 10th century B.C.” For a discussion of the dating of a *kuei* of similar shape, see No. 69.

¹⁰⁷ *K’ao-ku hsüeh-pao*, 1958, No. 2, Pl. I; also rubbing in Pl. II.

Kuo's dating, however, is based on an historical identification that is open to doubt, and neither the shape nor the decor fit comfortably into such a late period when the typical style has become very different (cf. the discussions of Nos. 76 and 78).

Another piece of evidence for an earlier dating is provided by the Shih-chin *ting*,¹⁰⁸ a shallower tripod with proportionately longer legs, but closely related in its band of decor, with similar long-tailed birds separated by escutcheons. The distinctive features of this vessel, the unusual shape and the curious "trunks" that replace the birds' beaks, do not seem chronologically significant, and it might well be roughly contemporary. According to Loehr, the inscription indicates that it was made late in the reign of King Ch'eng or under King K'ang, i.e., at the very end of the eleventh or first part of the tenth century.¹⁰⁹

TECHNICAL OBSERVATIONS

This small *ting* is cast in one piece in what appears to be a three-piece, six-division mold. The legs which are an integral part of the vessel have clay cores, and on the underside they are connected by cast-in ribs in low relief which form a Y or star-shaped design. The pattern resembles that on the underside of the square *ting* Number 34, and the legs of both vessels have two vertical mold marks between which is a rough unmodeled area that does not line up well with the corresponding rib. The inner sides of the legs do not seem to have holes or vents leading into the clay core. On the outside of the bowl are a number of chaplets on the body bulge and underneath there is a chaplet flanking both sides of each leg. The inscription may be etched. The grooves are undercut with steep edges and ends, the corrosion in the grooves is thin, and the dendritic structure of the metal may be seen in the grooves after cleaning with water. No tool-marks are evident.

In spite of the smooth, tin-oxide patina on the outside, the bronze is quite deeply corroded. The small patches of bright green on the inside

¹⁰⁸ Jung, *Shang chou . . .*, No. 51.

¹⁰⁹ Loehr, *Bronzextexte . . .*, II, p. 248ff.

NUMBER THIRTY-THREE

test strongly for the chloride ion and give a paratacamite X-ray diffraction pattern which shows the vessel is afflicted in a minor way with "bronze disease." As in many other bronzes of this series, a black deposit which is the usual mixture of quartz, cuprite and carbonaceous material is lodged in the fossae of the design. The surface underneath shows many parallel abrasions which may be evidence of post-cast tooling. There is no evidence of modern repairs or touching up with paint.

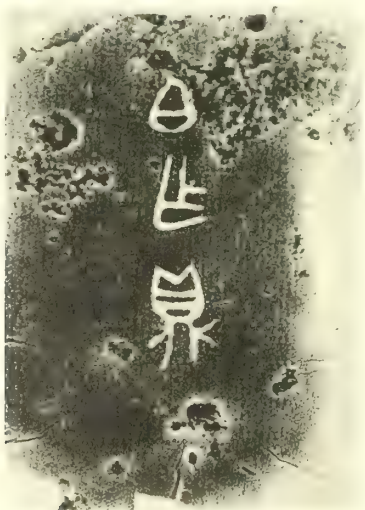
Composition: Sample taken from underside of leg centered between handles.

Wet chemical analysis: Cu 76.0%; Sn 16.0; Pb 6.0; Total 98.0.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.4; Co 0.02; Ni 0.03; As 0.3; Sb 0.1; Bi 0.06; Cr 0.002; Mg 0.003; Mn < 0.001; Si 0.06.

INSCRIPTION

The inscription, which is spuriously incised, comprises the three characters "Po made (this) vessel." *Po* "Count," "eldest brother," is usually employed in the sense of a title. This particular inscription has not previously been reproduced, but a similar text is recorded in *Chen-sung* (hsü-pien 1.16b). A rubbing of the latter is in *Kōsai takuhon* (8.13).



NUMBER THIRTY-THREE

A large number of vessels recorded from the 18th century onwards contain the similar text: "Po made (this) i." There are seven examples in the early Ch'ing catalogues and about twice this number in late Ch'ing and recent catalogues. A fully attested example cast in a *hsien* was excavated at Chun-hsien in 1932 (*Chun-hsien yi-ch'i* 7b).

Fang-ting

Early Chou dynasty (late 11th – early 10th century B.C.)

Inscription of 40 characters in one side

Height, 26.7 cm. (10½ in.)

Width, 19.7 cm. (7¾ in.)

Weight, 3.77 kg. (8 lbs., 5 oz.)

Accession number 50.7

The rectangular vessel has two handles rising from the rim at the narrow ends, and the corners carry segmented flanges. At the top of each side is a serpentine band of the “split-skin type” on a *lei-wen* ground; that is to say, a single mask in the center serves as a head for two bodies. Below this is a perfectly plain cartouche framed at the bottom and on both sides by three rows of nipples. *T'ao-t'ieh* with flanges in relief appear at the tops of the four legs. The pale gray-green patina shows areas of cuprite and malachite encrustation.

This vessel is one of a set discussed below in connection with the inscription.



NUMBER THIRTY-FOUR (50.7)

NUMBER THIRTY-FOUR

STYLE AND CHRONOLOGY

A fairly sound basis for dating this piece is provided by the inscription; and the early Chou date thus suggested is in no way contradicted by the style of the decoration. The all-over pattern of round bosses has antecedents in the Shang dynasty (cf. the *ting* No. 29); but in vessels of the early Chou period, the pattern undergoes several mutations. The bosses may project farther from the surface;¹¹⁰ the linear patterns surrounding them may disappear;¹¹¹ or the diaper pattern may disappear also, leaving the bosses thicker-set and in even rows, as here. All these developments are combined in a most striking fashion in our *kuei* Number 66. The addition of animal masks to the cylindrical legs is most characteristic of early Chou, although it may have begun in the late Shang.¹¹² The serpent motif occupying the band below the rim, with two bodies (or two halves of a split body?) extending sideward from a single head, also has its closest parallels in vessels of early Chou date, such as, the *fang-i* Number 38. The alternating straight-line and T pattern is a survival from Shang, but the profile of the flanges, with two blunt-ended projections on each, is chiefly an early Chou feature, probably coexisting with the hooked flanges, since it appears, for example, on the *kuang* Number 44, a vessel closely related in decor style to the *fang-i*.

A *fang-ting* more flamboyant in style but interestingly related to this is in the Nelson Gallery; it bears a brief inscription mentioning King Ch'eng, and has been dated to his reign, although Ch'en Meng-chia argues that the inscription indicates that it was made as a sacrifice to King Ch'eng, and was, therefore, made after his death, during the reign of King K'ang.¹¹³ The slight concavity in the outline of the legs is like that on our vessel, as are the handles, with a double line following the

¹¹⁰ E.g. on two similar *kuei* vessels in the Hakutsuru Museum, Mizuno, *In shū* . . . , Pl. 95, and the Moore Collection, Umehara, *SKS/E*, II/105.

¹¹¹ E.g. on a *kuei* in the Menten Collection, Umehara, *SKS/E*, II/106, and a similar piece formerly in the Wannieck Collection, Watson, *Ancient Chinese bronzes*, Pl. 41b.

¹¹² Watson, *Ancient Chinese bronzes*, p. 46 and Pl. 9b; here, a slight curve appears in the profile of the legs, foreshadowing, perhaps, the pronounced curves to be seen in the legs of later *ting* tripods. (The rectangular *ting* disappears soon after the beginning of Chou.)

¹¹³ Mizuno, *In shū* . . . , Pl. 92; Plumer and Menzies, Loo, *An exhibition* . . . , No. 30, Pl. XVIII; Ch'en, *Yin-tai-i'ung-ch'i*, r. 47.

shape on their outer surfaces. Otherwise, however, the Nelson Gallery vessel is an expression of the extreme taste for multiple projections and irregular profile that represents one aspect of early Chou bronze style; the flanges are complex in outline, the animal masks on the legs have long curling horns, the bosses are longer and pointed, and two of *k'uei* dragons with bottle-shaped horns are attached to each of the handles. The difference in effect between this and the sober, self-contained Freer vessel probably has no chronological significance, but rather reflects some difference in function, or locale, or simply the varying tastes of the makers and users of the bronzes.

TECHNICAL OBSERVATIONS

The vessel body appears to have been cast in a four-piece mold assembly. Three of the legs are solid and are cast as one with the vessel, but the fourth leg which is clay cored is a contemporary repair. A radiograph of the piece shows that the core is tilted and off center, as if it were carelessly placed in the mold. The inside of each of the three original legs has a roughly cast and undecorated vertical panel sharply delineated, but the fourth has a thick vertical mold mark in the same position. Where this leg joins the body a thin shelf of metal spills over onto the vessel bottom; and after this was scraped and cleaned, a seam was clearly visible. Radiography confirms the presence of a core in the fourth leg but gives no clue to the reason for the repair. Perhaps in the original casting this leg failed to fill out so that a replacement was necessary. No seams can be found where the three solid legs join the vessel (Vol. II, ch. VII).

Mold marks show along the flanges, especially at each corner under the shelf-like rim. The underside of the bottom is criss-crossed by double, parallel, straight ridges which connect the legs. These ridges and the rough-cast surfaces on the inside of the legs may have something to do with the inter-leg core assembly.

In the rectangular undecorated area on each face is a chaplet. One of these is located midway between two characters in the inscription. This chaplet is made of metal more transparent to X-rays than the metal of the vessel. There are also three large chaplets in the bottom. Another

NUMBER THIRTY-FOUR

striking feature of this bronze is the black filling in the sunken decor, which contrasts pleasingly with the smooth, gray-green patina. Analysis shows this is chiefly a mixture of carbonaceous material and fine quartz. There are also residues of a black layer over some of the undecorated surface, which seems to be ordinary carbon. Brownish deposits on the legs are a mixture of cuprite and carbon, not iron rust as first glance suggests. These carbon deposits may give support to the widely held view that this type of vessel was a cooking pot. A low density area in the vessel bottom, revealed as a black spot in the X-rays, corresponds to a local area of deep corrosion.

Composition: Sample taken from underside of a corner flange.

Wet chemical analysis: Cu 77.7%; Sn 14.9; Pb 5.5; Total 98.1.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.3; Co 0.02; Ni 0.04; As 0.3; Sb 0.3; Bi < 0.03; Cr 0.002; Mg 0.004; Mn < 0.001; Si 0.04.

INSCRIPTION

There are four *fang-ting* bearing this inscription. Two are lodged in the Palace Museum, Taiwan, and one of these is considered by Ch'en Meng-chia to be spurious. A further vessel is known only by the rubbing published by Ch'en.¹¹⁴

As an historical document the inscription has attained a considerable measure of importance, and to us, it may be especially significant as the investee, Ta-Pao may in some way be connected with Ming-pao in the *Nieh Ling I* inscription (No. 38). The inscription reads:

1. (When) the Duke came and cast (in honor of) Wu Wang (and)
2. Ch'eng Wang the *i-ting*; in the 4th
3. month, the second quarter of the month, on the day *chi-*
4. *ch'ou* (the 26th day of the cycle), the Duke awarded the Tso-ch'e
(The Recorder)

¹¹⁴ A. G. Wenley, *The appearance . . .*, points out that the fourth *ting* of the set is in the Hermitage Foundation, Norfolk, Virginia. He also notes that the scribe of this text had the same name as the scribe who wrote the text in our *fang-i* No. 38 and may have been the same man or else his son or nephew. (J.A.P.)

NUMBER THIRTY-FOUR

5. Ta a white horse. Ta extolled
6. the August Heavenly Governor Ta-pao's
7. grace. Therefore made (for) Tsu-ting
8. (this) valuable and honored *i*. Clan-sign.



Fang-ting

Recent

Inscription of three characters in one side

Height, 24.1 cm. (9½ in.)

Width, 19.0 cm. (7½ in.)

Weight, 3.77 kg. (8 lbs., 5 oz.)

Accession number 09.261

In shape and decoration this *ting* is almost a duplicate of Number 34; the two vessels weigh exactly the same, and their chemical compositions are nearly identical. The workmanship is inferior, and the whole surface lacks the fine sharpness of casting that distinguishes the original. A dull-brown, metallic patina shows occasional areas of malachite encrustation.

When this was purchased from Riu Cheng Chai in Shanghai in 1909, Mr. Freer made the following note: "Very fine specimen of casting and probably a genuine product of the Chou dynasty – late (?)." Mr. Lodge in 1942 considered it a "doubtful specimen."



NUMBER THIRTY-FIVE (09.261)

NUMBER THIRTY-FIVE

STYLE AND CHRONOLOGY

This is an imitation of the *fang-ting* vessel type of the early Chou period, of which a number of examples of genuine antiquity survive, including our Number 34 described above. The variation of the “whorl-circle” motif seen above and below the split serpents, with the whorls reduced to simple bumps, occurs also on the *p'ou* Number 2. The *fang-ting* was evidently one of those vessel types favored by the forgers, since many technically crude and stylistically unconvincing pieces exist.¹¹⁵

TECHNICAL OBSERVATIONS

The vessel appears to be cast in one piece, and no mold marks or parting lines can be seen along the flanges or on the inside of the legs which are solid. On the underside connecting the four legs is a peculiar and crudely made cross which appears to simulate a feature found in some other



FIGURE 28

¹¹⁵ E.g. Jung, *Shang chou . . .*, Nos. 124, 127, 128, 129 (the last similar to 09.261), or *Ku-kung t'ung-ch'i . . .*, II, p. 25.

vessels of this type (*fig. 28*). Chaplets do not appear to be present. The inscription is cast into the vessel side. The evidence suggests that the vessel was cast by the *cire-perdue* method as a copy or imitation of an early piece.

The patina is natural, and the earthy residues look genuine. There are repairs; an area of loss at one end just below the handle has been filled in with a plaster composition and concealed with a pigment mixture in which Paris green, smalt, and ground azurite were recognized. This area fluoresces in ultraviolet light.

Composition: Sample taken from one of the flanges.

Wet chemical analysis: Cu 78.7%; Sn 13.9; Pb 4.7; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.3; Co 0.005; Ni 0.03; As 0.3; Sb 0.07; Bi 0.07; Zn < 0.03;

Mg < 0.001; Si 0.02. (Sample taken from a leg.)

INSCRIPTION

The clan sign has not yet been identified. There are a number of almost identical inscriptions containing the same clan sign but with the “tail” written upwards. The remainder of our inscription comprises the combination *fu-ting* “Father Ting.”



Fang-i

Shang dynasty (middle-late An-yang, 12th – 11th century B.C.)

Inscription of one character

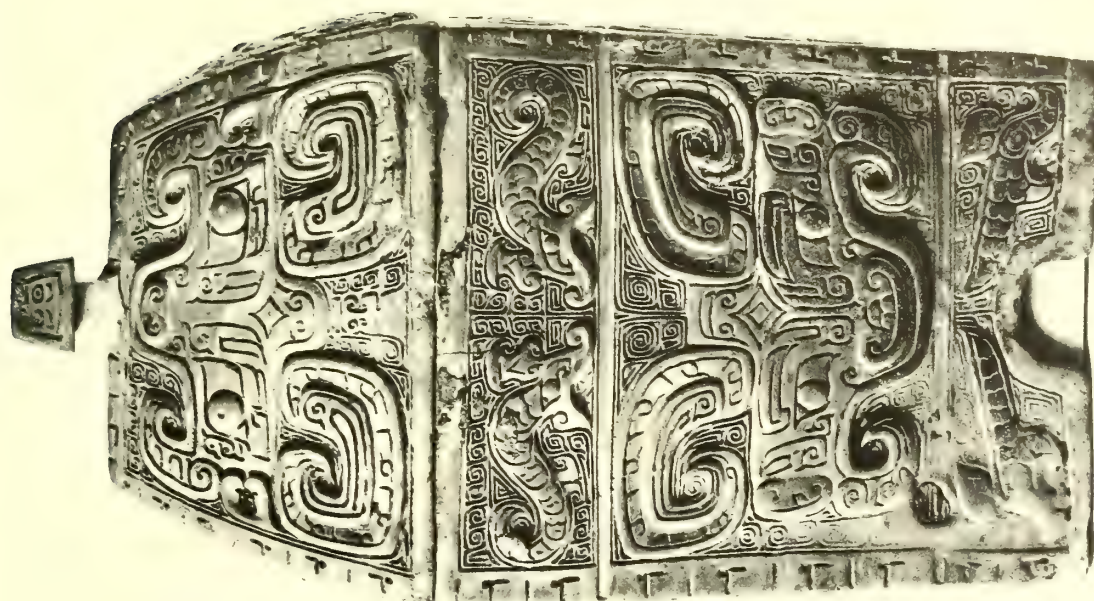
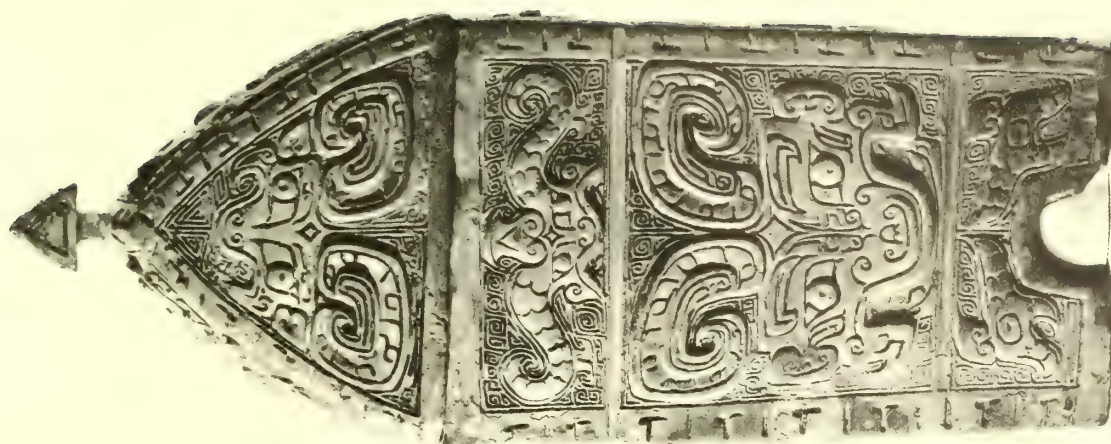
Height, 19.3 cm. ($7\frac{5}{8}$ in.)

Width, 10.8 cm. ($4\frac{1}{4}$ in.)

Weight, 1.25 kg. (2 lbs., 12 oz.)

Accession number 54.13

The rectangular, covered vessel is cast unusually thin, and each side carries three main bands of decoration below the lid. Facing pairs of small bottle-horned dragons on the sides of the upper band are united on the shorter ends to form a split body and mask topped by a single horn. In the main zone on each side is a single powerful *t'ao-t'ieh*, and below this are two small scaly dragons with straight, pointed tails and ears. These face outward, one on each side of a central arching aperture in the foot rim. The large main *t'ao-t'iehs* are repeated in inverted sense on the lid. All backgrounds are filled with *lei-wen*, and the whole vessel is covered with a uniform, smooth, gray-green patina inside and out.



NUMBER THIRTY-SIX (54.13)

NUMBER THIRTY-SIX

STYLE AND CHRONOLOGY

Two *fang-i* of related design, and the lower part of a third, were found at An-yang.¹¹⁶ The two complete vessels exhibit the style seen also on, for example, the *chia* Number 22 with *t'ao-t'ieh* masks made up of dispersed elements rendered in two-level relief, and covered with fine spirals. The two complete vessels have less in common with this *fang-i* than with Number 37, which they match closely in shape, in the character of the decor, and in the prominence of the flanges, with an extra one located medially on each side. The topless vessel agrees better with this one; there are no flanges (it lacks even the notch marks along the vertical edges), and large, integral *t'ao-t'ieh* occupy the main areas.¹¹⁷ A *fang-i* even more similar to this, on which the corners are likewise treated as flanges without actually projecting, is in the collection of R. E. Luff, England;¹¹⁸ still another is in the Brundage Collection (B.60.B.997). Two other closely related *fang-i* were reputedly found at An-yang.¹¹⁹ The fact that the two are virtually identical, except that one has raised and the other flush decor, throws into question the assumption that these two modes of decoration can be clearly distinguished chronologically, since it would be hard to believe that those two, and ours can be far separated in time.

Li Chi believes that the *fang-ting*, like other bronze types of square or rectangular shape, originated in vessels made of wood, and that the survival of a wood-carving tradition accounts for the fact that examples are practically always completely covered with decoration, while vessels round in section, deriving from a pottery tradition, frequently have large portions of their surfaces left bare.¹²⁰

¹¹⁶ Li Chi, *Chi hsiao-t'un . . .*, Part I, Pl. XIX, Nos. 1 and 2 (the former, the incomplete vessel, also in *The beginnings . . .*, Pl. XXXVII); and *The beginnings . . .*, Pl. VI left, from Hou-chia-chuang.

¹¹⁷ For references to other examples of unbisected *t'ao-t'ieh* on Shang bronzes and other objects, see the discussion of the *ting* No. 30.

¹¹⁸ Watson, *Ancient Chinese bronzes*, Pl. 17.

¹¹⁹ Huang, *Yeh-chung . . .*, II/A/12 and III/A/21.

¹²⁰ Li Chi, *Chi hsiao-t'un . . .*, Part I, p. 61, and *The beginnings . . .*, p. 32.

TECHNICAL OBSERVATIONS

Both vessel and lid were cast apparently from four-piece molds with main joins along the corners where there is lack of apposition of the two horizontal narrow plain bands above and below the main *t'ao-t'ieh* masks. Other evidences of piece-mold casting are the thin fins along the edges of the four cut-out arches of the foot. There is no evidence of the use of chaplets, but there is a peculiar metal insert just below the *t'ao-t'ieh* on the left side of one face of the vessel which may be an old repair. The insert is striated on the outside perhaps done in a crude attempt to make the insert merge with the decor. One of the cross striations is thicker, and it may be a sprue remnant. There is general blurring of the decor in this corner of the vessel. The bottom underside is plain. The knob and stem of the lid are cast on, apparently through a perforation in the peak of the lid and locked by overflow of metal to the underside. The main elements of the decor are nearly identical, but not the *lei-wen*.



FIGURE 29

NUMBER THIRTY-SIX

The turquoise-toned patina is quite uniform all over and is soft, almost powdery. It consists mostly of tin oxide, but contains also some lead carbonate. Ghosts of the dendritic structure of the original cast alloy can be seen microscopically in several places in the corroded surface. Inside of the cover the patina shows a sort of water mark which is rimmed with azurite and cuprite. In small areas on the outside the fossae of the design are partially filled with a dark substance which looks like a kind of inlay (*fig. 29*). Some of the filling is black, but most of it is reddish brown, and X-ray diffraction analysis shows it is a mixture of cuprite and metallic copper. The filling seems to lie in the grooves on top of the pale green, copper-stained tin oxide which covers most of the surface. In other areas the fossae hold only earthy residues.

Composition: Sample taken from under edge of foot.

Wet chemical analysis: Cu 78.1%; Sn 12.9; Pb 7.1; Total 98.1.

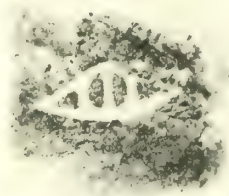
Additional elements estimated by emission spectrometry: Ag 0.09%;

Fe 0.08; Co 0.004; Ni 0.003; As 0.1; Bi <0.03; Cr 0.003; Mg 0.001;

Mn <0.001; Si 0.02.

INSCRIPTION

The inscription which is cast-in comprises the one graph “eye” and is the sole example of the kind. Single eyes appear in several other inscriptions, but only in combination with other graphs, e.g., *Yin-wen* B.19a; double eyes are similarly found.





Detail of foot, showing mold mark inside semicircle
($\times 2.5$)

Fang-i

Shang dynasty (middle-late An-yang, 12th – 11th century B.C.)

Inscription of two characters on both vessel and cover

Height, 22.2 cm. (8 $\frac{5}{8}$ in.)

Width, 15.2 cm. (6 in.)

Weight, 2.52 kg. (5 lbs., 9 oz.)

Accession number 15.136

This vessel has the usual *fang-i* decoration of *t'ao-t'ieh* in the main areas, and inverted on the lid, with small *k'uei* dragons in the upper and lower borders of the vessel. The casting is of indifferent quality, and the surface is largely encrusted with malachite and some areas of cuprite and azurite all highly polished from handling.

Mr. Freer's note when he bought this vessel from Tonying and Co in 1915 was, "Beautiful – I believe this specimen genuine Chou, but feel that some of the coloring was done by brush – especially the blue tones on the body. Seal on inner cover in relief."



NUMBER THIRTY-SEVEN (15.136)

NUMBER THIRTY-SEVEN

STYLE AND CHRONOLOGY

As was noted in the discussion of Number 36, several related vessels were found at An-yang, establishing this shape firmly as a product of the latter part of the Shang dynasty. Another of the same group, reportedly found at An-yang, is now in the Metropolitan Museum.¹²¹ The present *fang-i* differs from these An-yang examples only in minor features of design, such as the projections at the tops of each segment of the flanges. An even closer relative, virtually identical in even minor features, is in the National Palace Museum, Taiwan.¹²² The inscription is also the same on the two examples, although the formation of the character within the *Ya-hsing* differs slightly. It has been suggested that the correspondence between the two, even to the identity of the inscriptions, may be grounds for suspecting the authenticity of our piece; and Barnard notes below the peculiar fact that the inscription occurs both in relief and intaglio. Until something more conclusive comes to light, however, we give the piece the benefit of the doubt.

TECHNICAL OBSERVATIONS

The vessel is cast apparently in a four-piece (eight-division) mold with true mold joins at the corners. The bottom bears an irregular mesh pattern in low relief and eight small brackets disposed one on either side of each corner (*fig. 30*). In the vessel bottom are three chaplets; one has apparently fallen out and has been replaced by a repair patch with a small sprue ridge.

The lid is proportionately heavier than the vessel. Wet analysis of the lid shows Cu 67.7%; Sn 7.3; Pb 22.2; Total 97.2 which is essentially the same composition as the metal of the vessel proper (sample taken from the rim edge). The pyramidal knob, which seems to be cast integrally, is crude and misshapen. The knob stem is perforated from front to back with a hole about 3 mm. in diameter. Another hole is found on the lid inside the center flange of an end panel. In the under surface of the lid are four chaplets symmetrically placed astride the apex.

¹²¹ Huang, *Yeh-chung* . . . , I/A/15, and Lippe, "A gift . . . ," p. 102.

¹²² *Ku-kung t'ung-ch'i* . . . , II, 108, No. A118.



FIGURE 30. Base

The vessel is distinguished by having nearly all over a bright green, enamel-like malachite patina with scattered patches of azurite. In places warty malachite has been ground flat and polished to reveal small spherulites of crystalline malachite. In one inside corner of the foot a considerable deposit of pure azurite is lodged. Only traces of earthy residues remain.

Pieces of corroded metal have been lost from the edge of the foot, and there are indications of old repairs. A part of one side was formerly repaired with a piece of scrap metal from another bronze shaped to fit the area of loss, and secured in place with soft solder which was well concealed with artificial patina. This repair has been removed.

The inscription is peculiar in that it is cast in relief on the inside of the cover, but is cast in intaglio in the inside bottom. The fossae of the

NUMBER THIRTY-SEVEN

intaglio character reveal extensive corrosion products including tin oxide, azurite, and malachite which seem to cover the normal strokes.

Composition: Sample taken from edge of rim.

Wet chemical analysis: Cu 67.8%; Sn 7.1; Pb 21.9; Total 96.8.

Additional elements estimated by emission spectrometry: Ag 0.3%; Fe 0.7; Co 0.02; Ni 0.02; As 1.0; Sb 0.2; Bi 0.06; Zn 0.07; Cr 0.001; Al 0.004; Mg < 0.001; Mn < 0.001; Si 0.001.

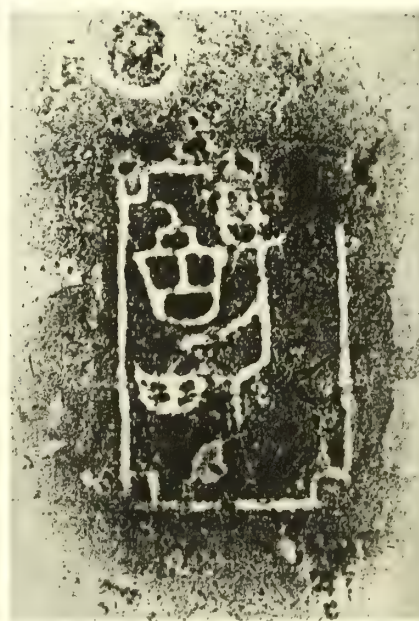
INSCRIPTION

The vessel inscription is in intaglio while the lid inscription is in rilievo. Rubbings of both are in the *Kōsai Takuhon*, Kyoto, but erroneously scattered as though from separate vessels (4.22, 17.23); they have not been published. A similar combination of vessel and lid inscriptions of this same graph appears in a *lei* (*Shang-Chou* 208.1, 2).

Although rilievo inscriptions are fairly rare amongst both unattested and properly attested bronzes of Shang and Western Chou date, the examples available generally seem to indicate that the practice was to



COVER



VESSEL

NUMBER THIRTY-SEVEN

execute the inscriptions in either one form or the other in inscribed vessel-lid sets.

More than a hundred examples of the *Ya-hsing* graph with libation pourer inside have been recorded since the 18th century. The motif manifests a number of minor changes in detail which, when studied systematically and extensively, may offer clues as to the authenticity of many of these items. The graph has been most popular with forgers and our *yu* Number 51 is certainly not the sole example of forgery.

Fang-i

Early Chou dynasty (late 11th – early 10th century B.C.)

Inscription of 187 characters in the lid and 188 in the bottom

Height, 35.6 cm. (14 in.)

Width, 24.7 cm. (9 $\frac{3}{4}$ in.)

Weight, 9.92 kg. (21 lbs., 14 oz.)

Accession number 30.54

Heavy segmented flanges run down the corners and down the center of each side of this bold rectangular vessel and its roof-shaped lid. A miniature roof shape with proportionate flanges forms the finial atop a stem in the center. On the lid are the usual upside-down *t'ao-t'ieh* beneath confronted birds; and the uppermost band of the vessel itself has a central tiger mask on each side joining two scaly serpentine bodies. Bold *t'ao-t'ieh* masks form the center design on each side, and on the foot are double pairs of confronted birds. A mixture of malachite and cuprite patination gives an overall effect of pale grayish-green mottled here and there with red. There is a certain amount of rough corrosion. The casting in low and high relief is uniformly fine.



NUMBER THIRTY-EIGHT (30.54)

NUMBER THIRTY-EIGHT

STYLE AND CHRONOLOGY

Of several related *fang-i*, the most interesting is the one in the Nezu Museum, Tokyo.¹²³ Like ours, it is part of a set related by their inscriptions, which in that case indicate a date in the reign of King K'ang, in the first half of the tenth century. It might, then, be a few decades later than ours, although on purely stylistic grounds, the unpierced flanges, less thoroughly flattened *t'ao-t'ieh*, it might otherwise be considered a bit earlier. This set, like the *Nieh-ling* set to which our piece and the *huo* Number 41 belong, was reportedly found at Lo-yang. Comparison of the *fang-i*, *fang-tsun*, and *huo* vessels in it with the equivalent pieces in the *Nieh-ling* set indicate that the latter are generally finer in workmanship and more elaborate in design; the other may well represent a later, slightly declining stage in a local tradition.

In form, the early Chou *fang-i* is an outgrowth of the Shang type seen in Number 36; but the severely rectilinear house-shape has been softened into a bulging outline, acquiring in the process, as Mizuno notes, more of the character of a vessel or container. A piece that appears to represent a late Shang form of the *fang-i*, already curvilinear in outline, is in the Brundage Collection.¹²⁴ A *fang-i* in the Nelson Gallery would seem to belong to the same stage as the Nezu vessel;¹²⁵ a later stage, with a quieter silhouette and decor in the broad bands characteristic of the middle Chou style, is in the Metropolitan Museum, New York (43.24.5).

All features of the decor on our piece bear out the early Chou date indicated by the inscription. The motif occupying the band just below the lid, a beast's head with the split body of a serpent extending to each side, was seen also on the *fang-ting* Number 34, which is likewise datable to early Chou period through its inscription. The birds in the lowest band are typical of this period, although not unknown earlier. The pierced hooked flanges, in particular, carry to a further point the late Shang tendency toward disrupting the outline of the vessel with multiple projections and so violating the self-enclosed quality of vessels of the

¹²³ Mizuno, *In shū* . . . , Pl. 105–107; discussion p. 49; also *Indai* . . . , Pl. XII.

¹²⁴ Karlgren, *Some characteristics* . . . , Pl. 22b.

¹²⁵ Karlgren, *op. cit.*, Pl. 21a.

“classic” An-yang phase. The flamboyant *t’ao-t’ieh* designs, rendered in a vocabulary of broad ornamented bands ending in hooks, with more hooks projecting along their sides, are in the same way totally at odds with the Shang repertory of styles, and represent in fact the earliest stage in a stylistic progression that was to culminate in the Middle Chou mode, with such pieces as the *hu* Number 76 providing the intervening links.

TECHNICAL OBSERVATIONS

The vessel and lid apparently were each made by direct casting in a piece mold made of four main sections.¹²⁶ The principal mold marks of each member run vertically along the corner flanges (*fig. 31*). Mold joins also show along the center flanges and even between the ears and under the chins of the free animal heads of the vessel proper. There is a vertical mold mark on each side of the stem supporting the cupola-like knob of the lid and on the underside of the three remaining flanges of the knob. Traces of mold marks also occur on each corner of the overhang of the lid. The square post of the knob handle and the knob itself are both hollow cast around clay cores which show clearly in the radiographs (Vol. II, Ch. VII).

A number of well-concealed chaplets are symmetrically placed in the sides of both vessel and lid. On the vessel four chaplets are found on each face located in or near the plain bands that encircle the body. There are two on each side of the lid in the plain band just above the edge. Chaplets are also visible in the inscription areas of both vessel and lid, but they are carefully placed between the columns of characters. For example, chaplets can be seen between the fourth characters in columns ten and eleven and the fifth characters in columns five and six in the rubbing of the inscription inside the vessel. A repair patch appears

¹²⁶ Noel Barnard has made an extensive study of this particular vessel, and he has used it as an example to illustrate the use of sectional molds in bronze casting. In Chapter 5 of his book he employs several line drawings (figs. 37 and 38) in an attempt to reconstruct the mold assembly he feels might have been employed in its casting. It is a complicated mold, with as many as six sub-units employed to make up the assembly for one side of each member, vessel, and lid. This kind of assembly would produce horizontal as well as vertical joins. In recent conversations on the basis of direct examination of the vessel at the Freer Gallery of Art, Barnard has modified his original views as expressed in his book; and he thinks a less complicated assembly than that originally envisioned was employed. To cast the high relief animal heads, he believes that inset molds were employed. This is perhaps the most challenging piece in the entire collection in respect to the mode of fabrication.



FIGURE 31

under the body bulge of the vessel; this patch flows over part of the last two characters in columns four and five, and is corroded enough to be roughly contemporary with the casting of the vessel. An indistinct line appears around the inscription area in the rim suggesting that the negative of the inscription might have been made in a separate piece and incorporated into the vessel mold (see Vol. II, Ch. VI).

The characters of the inscription have sharp edges and are cast with precision. It is to be noted that the lines of the inscription hug the edges and crowd the areas in which they are placed.

NUMBER THIRTY-EIGHT

The underside of the bottom is crossed by two wide bands in low relief (*fig. 32*). This cross is probably not decorative, but has something to do with the mold core of the foot. There are eight small brackets – two on each side – in the angle where bottom and foot meet. The same illustration shows that each of the four sides of the foot or base flange is perforated in the middle by a pair of square holes, one above the other; and on the inside, in a fixed relationship to each pair of holes are four sockets, which indicate possibly that this *i* was originally provided with a separable bronze base. The holes seem to be functional rather than decorative.

Most of the outer surface is covered with smooth tin oxide stained pale green with copper compounds, but there are numerous scattered small patches of dull-red cuprite which tend to fill the fossae of the design. Scattered here and there are patches of bright, powdery green, which

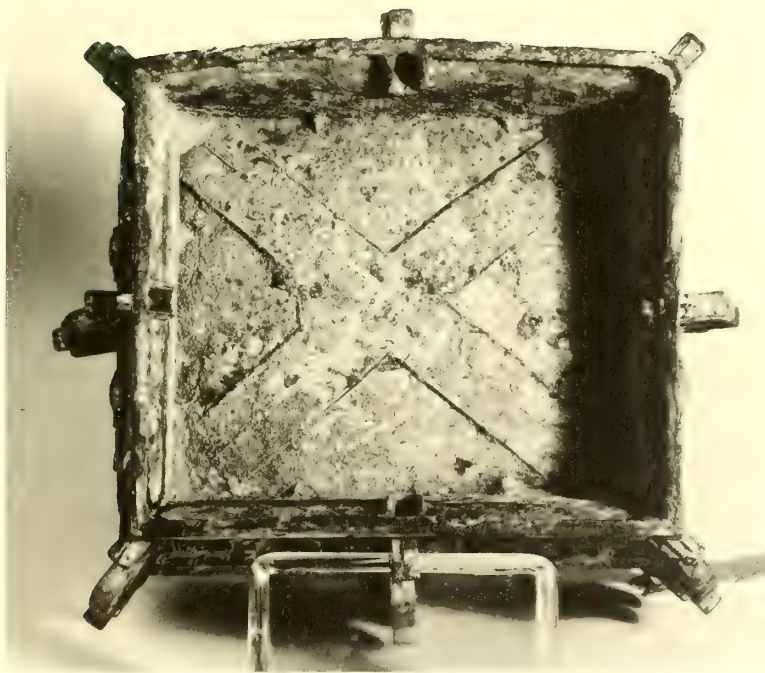


FIGURE 32

NUMBER THIRTY-EIGHT

give X-ray diffraction patterns corresponding to the basic copper chloride, paratacamite which is the end product of the corrosion process sometimes called "bronze disease," and also "recurrent corrosion"; it was caused by traces of chloride salts in the corroding environment. There is no evidence that these areas of corrosion are now active in its present dry environment. Recent comparison with large detail photographs of the same affected areas taken in 1954 show no increase in size of the bright green patches.

On the interior the corrosion products are different and indicate that the lid was kept in place during the burial period. The area of the inscription in the lid is rather uniformly covered with a thin layer of dark blue, finely crystalline azurite. For some unknown reason, the interior of the two gable ends and the blank area below the blue encrusted inscription are uniformly covered with a thin layer of malachite. The distinct and straight line of demarcation between the azurite covering the inscription and the malachite covering the blank area below suggests at first glance that the blue of the inscription was originally covered with malachite which has been removed mechanically in order better to reveal the inscription; but microscopic examination shows that this is not the case. In fact, the blue tends to be formed *over* the green.

On the interior of the vessel proper, a rust-colored band runs around the inside lip and corresponds in width to the inner flange of the lid. Below this the side walls are covered thinly with malachite. The metal surface of the bottom inscription has a grayish metallic appearance caused presumably by incipient tin oxide formation. There is no indication of chloride corrosion here. Obviously the corroding environment of the interior of the vessel was different from that of the exterior.

Some loess-like earthy accretions are lodged in recesses especially on the inside of the foot where they are mixed with blue and green copper corrosion products.

Composition: Sample taken from rim of vessel.

Wet chemical analysis: Cu 77.7%; Sn 21.5; Pb 1.2; Total 100.4.

Sample from under edge of lid: Cu 77.9%; Sn 20.3; Pb 0.9; Total 99.1.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.09; Co 0.005; Ni 0.03; As 0.2; Sb 0.2; Bi 0.04; Cr 0.004; Mg < 0.001; Si 0.01.

The metal has the highest tin content of any of the vessels sampled in this series. The composition is close to that of speculum metal which was so widely used in the bronze mirrors of the Han dynasty. Freshly cut metal on the inside of a boring is pale yellow.

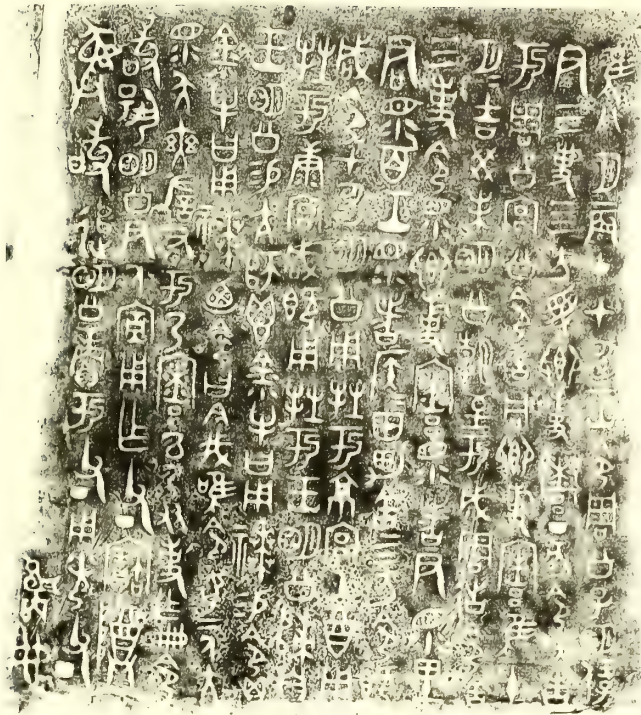
INSCRIPTION

The best known of the inscribed vessels in our collection, this *fang-i* has received considerable attention from most of the major Chinese and Japanese epigraphers and even today new studies continue to make their appearance. As an historical document from the early decades of the establishment of Chou it may take pride of place amongst the slowly but steadily increasing numbers of inscribed bronzes excavated from Western Chou sites. However, we must leave detailed discussion on such aspects for later presentation and here merely give a translation of the inscription:

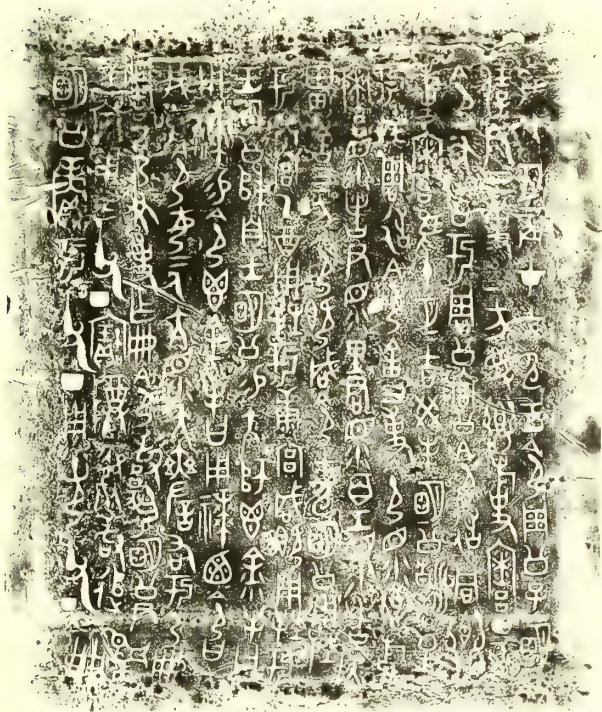
1. In the eighth month, the *ch'en*-phenomenon (occurring) on the day *chia-shen*: the King commanded Ming Pao, the son of the Duke of Chou,
2. to superintend the *San-shih* and the *Ssu-fang*, and to take charge of the Ch'ing-shih-liao. On the day *ting-hai*: [Ming Pao] commanded Nieh to announce [the honour]
3. in the Chou Kung Palace. The Duke [Ming Pao] ordered the assembly of the *Ch'ing-shih liao*. In the tenth
4. month, the first quarter, on the day *kuei-wei*: Ming Kung [Ming Pao] held audience. Arriving in Ch'eng-Chou [he] sent out orders to put into effect
5. the decrees of the *San-shih* concerning the Ch'ing-shih-liao, the *Chu-yin*, the *Li-*
6. *chün* and the *Pai-kung*; and as to the *Chu-hou* [namely:—] the *Hou*, *Tien*, and *Nan*, [they were] to put into effect the decrees of the *Ssu-fang*. Having

NUMBER THIRTY-EIGHT

7. [carried out] completely the [Royal] commands, on the day *chia-shen*, Ming Kung sacrificed a victim in the Ching Palace. On the day *i-yu* [he]
8. sacrificed a victim in the K'ang Palace. All this accomplished; and having sacrificed a victim [in the presence of] the King, Ming Kung returned from
9. the King. Ming Kung awarded K'ang Shih aromatic spirits, a *chin* and an ox; saying: 'Use these in the x-sacrifices.' [He] awarded Ling [i.e. Nieh] aromatic spirits,
10. a *chin* and an ox; saying: 'Use these in the x-sacrifice.' Then [he] gave orders saying: 'Now I command you two men, K'ang and
11. Nieh, . . . to [give] aid and support to your colleagues [liao= Ch'ing-shih-liao] by means of your friendly services.' The Tso-ts'e Ling
12. presumes to extol the beneficence of Ming Kung, the Manager of Men. Therefore, has made for [his deceased father] Fu-Ting [this] precious and honoured
13. Yi-vessel. [He] presumes to reflect upon Ming Kung's bestowal [of honour] upon [his deceased father] Fu-Ting, thus glorifying Fu-Ting.



COVER



VESSEL

Huo

Shang dynasty (middle An-yang, 12th century B.C.)

No inscription

Height, 18.5 cm. ($7\frac{1}{4}$ in.)

Width, 21.0 cm. ($8\frac{1}{4}$ in.)

Weight, 2.78 kg. (6 lbs., 2 oz.)

Accession number 42.1

The squat, heavy-set vessel with lid takes on an anthropomorphic character with the human face on top and the bent arms on the sides. The creature has a serpentine body beginning behind the head and making one complete spiral turn around the vessel; concentric rectangles bordered by a scale band above and a different band below cover the body. A ground of *lei-wen* covers the rest of the vessel; two *k'uei* dragons in relief in different positions flank the body at the back, and two bottle-horned dragons surround the spout with their gaping jaws. On the upper arms are monster-mask lugs which must have secured a bail handle (or rope?) which passed through the perforated ears on the lid; and two more *k'uei* dragons are cast in intaglio between the bottle horns of the lid. The surface is covered with a smooth, gray-green patina with small areas of malachite encrustation.



Right Side



Front

NUMBER THIRTY-NINE (42.1)

NUMBER THIRTY-NINE

STYLE AND CHRONOLOGY

This is one of the few truly unique vessels among extant Chinese bronzes. It is called a *huo* by way of classification, but actually has little in common with other pouring vessels of the Shang period. The shape of the body agrees most closely with *p'ou* of Shang date, and the geometric pattern covering most of the lower part, while in this context it is to be understood as representing the pattern of a serpent's body, strengthens the resemblance. In its ingenious adaptation of a functional shape to what is in effect quasi-representational sculpture, it is matched only by a few others, such as the *kuang* Number 43 and the famous *yu* in the Sumitomo and Cernuschi Collections.¹²⁷ The demon or deity it represents, human-headed but with bottle-shaped horns, arms ending in claws, and a serpent's body, may well be the same that appears on the rear legs of the *kuang* Number 45 although there are minor differences. Similar arms and claws also appear on the famous Sumitomo drum and on a white pottery *lei* from An-yang.¹²⁸

The plastic rendering of the mask, as Sickman has remarked,¹²⁹ is unusual in Shang bronze art, and suggests modelling in some soft material – presumably clay, however, rather than wax, as he suggests. While the clay model for the body was probably formed by throwing on a wheel, in the usual way, with detail carved or applied afterwards, the model for the lid may well have been molded directly, in a freer manner, with its base pared down to fit the mouth of the body.

An interesting comparison can be made with the large human masks rendered in relief on a bronze *fang-ting* discovered at Ch'ang-sha, Hunan Province, in 1959.¹³⁰ On these, the eyes are represented in a less stylized manner, not in the form typical of Late Shang style, as on the *huo*; the cheeks are more naturalistically modelled, the nose and mouth less flattened. The difference is probably due to the same variations in

¹²⁷ The former in Mizuno, *In shū* . . . , Pl. 69.

¹²⁸ Sumitomo, *Sen-oku* . . . , pt. 1, pl. 130; and Umehara, *Kanan anyō* . . . , pls. 9–16. Munsterberg, *An anthropomorphic Deity* . . . , attempts an iconographic interpretation of our vessel.

¹²⁹ Sickman, *The art* . . . , pp. 6–7.

¹³⁰ A good reproduction in *Sekai bijutsu taikai*, Tokyo, Kodansha, 1963, vol. I, p. 49, Pl. 45.

local styles that can be observed in later Chou art when relatively realistic styles in the south contrast with the more formal art of the traditional center, the valley of the Yellow River. In keeping with this observation, the human faces on the handles of the huge *fang-ting* vessel excavated in 1939 at An-yang¹³¹ are closer to the mask on this *huo* in the shape of the face and ears as well as in the treatment of the eyes, nose, and mouth.



FIGURE 33

¹³¹ *Op. cit.*, p. 36, Pl. 9.

NUMBER THIRTY-NINE

TECHNICAL OBSERVATIONS

The vessel is cast in a three-piece mold but because of the high finish, the mold marks are difficult to see. The mold assembly comprises one segment at the rear of nearly 180° extent and two smaller segments at the front of approximately 90° each. The spout is located astride one of the mold joins. The mold joins do not pass through the lug handles or rope holders but just behind them (*fig. 33*). These handles appear to be cast as a unit with the vessel. Horizontal mold joins appear on the vessel surface just above and below each lug. Indentations on the inside surface of the vessel walls correspond with some of the prominent relief elements of the decor. The spout is tubulated, and the opening into the vessel is full round. There is faint evidence of chaplets in the plain band under the body bulge and others in the vessel bottom. The underside of the bottom is plain, but the foot ring is pierced with three symmetrically placed squarish holes in line of the mold marks. The lid shows no vestiges of mold joins except lengthwise on both sides of each horn and along the edge of one ear. The two horns are hollow nearly to their ends. The eyes, nose, and lips are indented on the inside.

The surface outside and much of the inside is covered with smooth, pale-green, tin-oxide patina. Small patches of malachite and azurite are found on the inside cover. The condition is excellent.

Composition: Sample taken from base.

Wet chemical analysis: Cu 78.4%; Sn 13.6; Pb 3.1; Total 95.1.

Additional elements estimated by emission spectrometry: Ag 0.03%; Fe 0.01; Co < 0.001; Ni 0.001; Sb 0.02; Al 0.004; Mg < 0.001; Si 0.07.



Top of cover



Back view of vessel

Huo

Shang dynasty (late An-yang, 12th century B.C.)

No inscription

Height, 17.5 cm. ($6\frac{7}{8}$ in.)

Width, 21.3 cm. ($8\frac{3}{8}$ in.)

Weight, 1.30 kg. (2 lbs., 14 oz.)

Accession number 36.6

The vessel takes the shape of an elephant executed in the round. On the lid is the same elephant repeated in miniature, and around the feet of the latter are four small scaly dragons. The main body of the animal is covered with a network of *lei-wen* pattern on which are bold *k'uei* dragons at the top, a large eye surrounded by four crescents in the center of each side, and somewhat deteriorated or disintegrated *t'ao-t'ieh* members on the front and back legs. All over the surface is a coating of light green patina with only minor areas of encrustation.



NUMBER FORTY (36.6)

NUMBER FORTY

STYLE AND CHRONOLOGY

Among early Chinese bronze vessels in elephant form, this one is relatively naturalistic, more so by far than the elephants in the former Oeder Collection¹³² and the Musée Guimet, Paris.¹³³ Whether distinctions of period or locale are involved here is impossible to say; it may be that the bronze artisan was simply allowed more freedom in natural forms unrestrained by the dictates of conventional vessel shape, and used his freedom to practice greater individuality.

Such realism and departure from stereotype is limited, however, to the shape of the piece; the surface ornament belongs to the standard Shang repertory. Two kinds of surface treatment are especially associated with animal or bird vessels: striation, sometimes limited to eyebrows but in other cases applied to the bodies of smaller dragons on the surfaces; and a scale pattern, either covering broad surfaces or segmenting a band-shaped area with broken-arc lines, as on the trunk of the elephant. These are likely to be present whether the creature represented is a bird,¹³⁴ a water buffalo, or an elephant.

The water buffalo in the Fujita Museum, Osaka, is similar enough in style to suggest that the two may be products of the same period and environment.¹³⁵ The horns display the same pattern as the elephant's trunk; the striation is there applied to a *k'uei* dragon which, along with a bird, surmounts the lid as the small elephant does on the *huo*; and on both, shallow-cast *lei-wen* set off the widely spaced components of loosely organized designs. The color and the manner of corrosion of the two pieces suggest also some common features in the composition of the metal, or else similar conditions of burial.

TECHNICAL OBSERVATIONS

The two members, the elephant and the lid bearing the baby elephant, are cast as single pieces. There are no mold or separation marks except

¹³² Watson, *Ancient Chinese bronzes*, Pl. 30b.

¹³³ Umehara, *SKS/E*, I, 36.

¹³⁴ E.g. the owl in the Pillsbury Collection, Karlgren, . . . *Pillsbury* . . . , Pl. 59.

¹³⁵ Mizuno, *In shū* . . . , Pl. 74.

along the median line, notably in the line of the tail ridge, spine, and trunk. The base of each foot is hollow and filled with baked clay core. A drilling made on the inside of the right hind leg shows that clay core extends the full length of the leg but not through into the body cavity. Radiographic examination shows that the trunk is tubulated. Both ends are open but the middle section is filled with earth. The hollow cast elephant's child lid fits loosely into the top. There are four small pierced holes in the front rim of the lid and two in the back, but their purpose is unknown. No chaplets are visible in either body or lid.

The surface of the vessel, which appears originally to have been finely finished, is uniformly covered with a smooth, yellow-green patina of tin oxide which is 1 to 2 mm. thick. Corrosion has penetrated so deeply that sharp edges of the decor are crumbly and fragile. It has been necessary to fix friable areas with a molten wax-resin mixture. There are earthy residues in the fossae of the design and on the exterior. No losses or replacements have been noted. In spite of the delicate surface, the figure is in exceptionally good condition.

Composition: Sample taken from body under left leg.

Because of deep corrosion no sample suitable for wet analysis was available.

Elements estimated by emission spectrometry: Cu principal; Sn > 1.0%; Pb > 1.0; Ag 0.1; Fe 0.03; Co < 0.001; Ni 0.003; Sb 0.02; Si 0.01.

Huo

Early Chou dynasty (late 11th– early 10th century B.C.)

Inscription of 50 characters inside the lid with the last four repeated under the handle

Height, 22.6 cm. ($8\frac{7}{8}$ in.)

Width, 21.0 cm. ($8\frac{1}{4}$ in.)

Weight, 2.35 kg. (5 lbs., 3 oz.)

Accession number 33.2

The covered vessel stands on four slightly tapered cylindrical legs with a spout protruding at one side and opposite this a handle surmounted by a buffalo head; the latter is attached to the lid by a linking member. On top is a small loop finial, and the lid and neck and main body of the vessel are covered with low relief casting. Four *t'ao-t'ieh* masks form the slightly bulbous corners above the legs; and except for the eyes and horns, the overall effect is that of an intricate and elaborately worked out ground of *lei-wen*. A smooth, gray-green patina covers the whole vessel and is interrupted here and there by only slight areas of malachite encrustation.



NUMBER FORTY-ONE (33.2)

NUMBER FORTY-ONE

STYLE AND CHRONOLOGY

This *huo* is one of the famous *Ch'en-ch'en* set and thus is datable by its inscription; but it is instructive, nevertheless, to see how its typological position and decoration confirm the epigraphic evidence.

Two *huo* of roughly the same shape are known, one in the Fujii Yūrinkan, Kyoto, the other published by Watson.¹³⁶ The former has a typical Shang inscription featuring the *ya-hsing* and *Fu-ting* elements, but is dated by Umehara to the Shang-Chou transitional period; the inscription in the latter also appears to be Shang in character and is discussed as such by Watson,¹³⁷ who, however, likewise labels the piece "Late 11th–early 10th cent. B.C., Transitional Style." The main designs on the bodies of these two *huo* are very similar, both consisting of *t'ao-t'ieh* masks with dispersed elements rendered in narrow, unornamented bands on a ground of fine spiral filling. There is considerable evidence connecting this decor style with the early Chou period (cf. the discussion of the *yu* Number 54). The datings proposed by Umehara and Watson would seem, therefore, to be sound; and we can take this form of the *huo* as characteristic of the end of Shang and beginning of Chou. Four-legged *huo* of a somewhat later stage, featuring bands with bird images belonging to the early and middle Chou transition, are in the Metropolitan Museum (46.55.1) and the Royal Ontario Museum, Toronto (926.21.23); a still later stage, on which these birds have been transformed into the familiar S-shaped dragons, is seen on a three-legged example datable by its inscription to the reign of King Mu (947–928).¹³⁸

Like the latter, the *huo* belonging to the *Pao-chi* altar set in the Metropolitan Museum is the three-legged variety of which the lower portion resembles the *li* tripod; but in several details it matches closely the corresponding parts of ours: the bovine mask surmounting the handle, the mode of attachment of the lid, the spout ornamented with a "rising blade" design.

For the chronological position of the decor, we would note only the

¹³⁶ Umehara, *SKS/J*, III, 252, and Watson, *Ancient Chinese bronzes*, Pl. 35a.

¹³⁷ *Op. cit.*, fig. 6, No. 6, and p. 71.

¹³⁸ Watson, *op. cit.*, Pl. 35b; translation of the inscription, p. 77.

similarity of the “animal triple band” motif in the zone around the neck to that on the *kuei* Number 65 which we date also, for reasons stated in the discussion of that vessel, to the early decades of the Chou dynasty.

This *huo* was reportedly found at Lo-yang in the winter of 1929, along with a group of other vessels, including a *tsun* and two *yu* bearing identical inscriptions.¹³⁹ These other vessels are in typically early Chou style, featuring hooked openwork flanges, animals composed of narrow bands and hooks, and other motifs characteristic of this period.

TECHNICAL OBSERVATIONS

The vessel including the handle, legs, and spout are cast in one piece apparently in a four-piece, eight-division mold with true mold joins located vertically at the corners. There is no evidence of mechanical joins or welds where the lid grip and the loops for the linking member between lid and vessel are joined; hence, they too appear to be cast as one with their bases. Mold marks running along the edge of the linking member indicates it was cast in place. The legs, which are cast solid, are well finished but show slight evidence of vertical mold marks on their inside faces. The handle is channeled and filled with hard clay core. In the vessel there is a chaplet on either side of each true join located in the decor just below each *t'ao-t'ieh* eye. An inscription of 50 characters is cast inside the lid, and four chaplets are discernible around that area both inside and out. The spout is hollow, and the opening into the vessel is full round.

The patina is thin and fairly even; patches of malachite are scattered over a smooth, dull gray-green surface. There is some adherent clay, and the inside of the vessel is thinly caked with earthy residues mixed with copper corrosion products. No paint or repairs were observed.

The fossae of the design, especially those on the spout are partially or completely filled with a black substance which seems to have been placed there intentionally. X-ray diffraction pattern of a sample of the black shows quartz as the main component. When microscopic specimens of

¹³⁹ Umehara, *Rakuyō hakken* . . . , fig. 1, p. 367.

NUMBER FORTY-ONE

the black are warmed with concentrated nitric acid, a brownish gummy residue is produced which indicates the presence of an organic binder which may have been lacquer.

Composition: Sample taken from leg under and to proper right of pouring spout.

Wet chemical analysis: Cu 71.1%; Sn 15.7; Pb 12.3; Total 99.1.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Fe 0.2; Co 0.004; Ni 0.01; As 0.3; Sb 0.03; Bi 0.03; Cr 0.002;

Mg < 0.001; Mn < 0.001; Si 0.04.

INSCRIPTION

An inscription of 44 characters is located on the inside of the cover while under the handle is a grouping of four graphs functioning as the clan name. Some variations attending the translation of the major text are discussed at length in Vol. III, these should be consulted alongside the following rendering:

1. In the year that the King (conducted) the Ta-yüeh ceremony in Tsung-chou (and) proceeded to
2. banquet (in) P'ang-ching, in the fifth month,
3. the third quarter of the month, (on the day) *hsin-yu* (58), the King commanded the Shih-
4. shang-officer together with the Shih-yin officer to convene (a meeting) at Ch'eng-chou, and to . . .
5. the swine (of ? to ?) the gentry. (Both?) were awarded a Yu-flask, aromatic wine, and cowries. Therefore
6. made for Fu-kuei (this) precious and honoured *i*. Ch'en-ch'en-ts'e-ts'e-?



Kuang

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

No inscription

Height, 16.8 cm. ($6\frac{5}{8}$ in.)

Width, 19.2 cm. ($7\frac{1}{2}$ in.)

Weight, 0.79 kg. (1 lb., 12 oz.)

Accession number 39.53

The lid terminates in an animal head with bottle horns over the spout, and at the back is a feline head with hooked snout. On top of the fluted handle is a third animal head with ram's horns. Uniformly fine *lei-wen* pattern covers the whole surface of the vessel, and over this, in low relief, are various dragon forms. On each side two large *k'uei* dragons are confronted to form *t'ao-t'ieh* masks. On the upper register are a dragon, a hare, an elephant, and two birds on each side; and around the base are eight fish arranged in two confronted sets on each side. An even gray-green patina with occasional areas of cuprite covers the surface.



NUMBER FORTY-TWO (39.53)

NUMBER FORTY-TWO

STYLE AND CHRONOLOGY

The decor style on this piece is one of the most common of the An-yang period, and has already been discussed in connection with the *chia* Number 22 and other vessels in the collection. Bronzes in this style are often distinguished by an extraordinary crispness and precision of casting (cf. also the *ku* No. 10); the workshops in which the style was current apparently maintained an especially high standard in both design and technique of fabrication.

A *kuang* in the Pillsbury Collection would appear to precede the present example stylistically; it is even simpler in silhouette, and the decor is flush with the surface, belonging to Loehr's "Fourth Style."¹⁴⁰ Another which Ch'en Meng-chia dates on the basis of its inscription to the time of King Ch'eng (1024–1005), is the *kuang* which provides a good example of the next stage in the evolution of this type after ours. The outline is more complex, with additional projections, and the flanges are no longer smooth and continuous; the eyes of the *t'ao-t'ieh* are rectangular with slits for pupils; and the animals of the decor are larger in relation to the size of the vessel, giving it the more crowded appearance typical of many early Chou pieces.¹⁴¹ A still later stage is probably represented by a *kuang* in the Sumitomo Collection, in which the same features are accentuated.¹⁴² These four form an instructive sequence, in which our vessel must logically fall between the "classic" An-yang stage of the Pillsbury *kuang* and the early Chou stage of the piece published by Ch'en Meng-chia. A date in the latter part of the An-yang period, which is also suggested by the nature of the decor, thus seems most likely.

TECHNICAL OBSERVATIONS

The vessel was probably cast directly in a two-piece, four-division mold, but is so highly finished that only vestiges of mold marks show at the quarter lines. None can be seen on the lid except on the curled projec-

¹⁴⁰ Karlgren, . . . *Pillsbury* . . . , No. 31, Pl. 46–7.

¹⁴¹ Ch'en Meng-chia, *Hsi-chou* . . . , Part I, p. 173–4 and Pl. XI–XII.

¹⁴² Sumitomo, *Sen-oku* . . . , No. 94.

tion between the broad ears of the animal mask. The handle appears to have been separately cast and fixed to the vessel with hard solder. The inside of the handle is channeled and partially filled with original clay core, very like those on many vessels of the type *kuei*. The horns of the sheep-like animal are modeled sharply in full round. A mold join shows on the inside curve of each horn. On the inside wall of the vessel are indentations corresponding to the side flanges and the *t'ao-t'ieh* eyes on either side. Inside the lid are also depressions opposite the horns, ears, and the *t'ao-t'ieh* eyes at the rear in which there are residues from clay cores. The underside of the bottom is plain. In neither vessel nor lid is there any sign of chaplets.

The modeling and casting of the sunken decor is sharp and fine. The surface has one of the finest copper-stained, tin-oxide patinas of any vessel in the collection. There is some cuprite, mostly in the fossae. On the upper portion of the interior the surface is metallic, but on the bottom there is a large patch of botryoidal malachite mixed with azurite. There is also a patch of botryoidal malachite on the inside lid. There is no evidence of paint or repairs and the condition is excellent.

Composition: Sample taken from rim of vessel.

Wet chemical analysis (single analysis): Cu 70.1%; Sn 11.6; Pb 15.6;
Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.1; Co 0.002; Ni 0.02; As 0.3; Sb 0.01; Bi < 0.03; Zn 0.02;
Al 0.002; Mg < 0.001; Si 0.02.

Kuang

Shang dynasty (middle An-yang, 12th century B.C.)

Inscription of two characters in bottom and cover

Height, 23.5 cm. (9 $\frac{1}{4}$ in.)

Width, 31.1 cm. (12 $\frac{1}{4}$ in.)

Weight, 3.52 kg. (7 lbs., 12 oz.)

Accession number 38.5

This large *kuang*, standing on an ovoid foot, combines three distinct zoological motifs. Seen from the front, the lid terminates in a boldly conceived feline head, and the back end shows the face of a great horned owl looking upwards. The body of the vessel takes the general form of seated fowl with a curious blunt-nosed head with ears. Very fine casting in low relief covers the entire surface with *lei-wen*, various dragon types, and with scale-like feathers on the neck, breast, and lower side of the fowl. The stylized wings on the sides and the legs and claws on the vessel's foot are in higher relief and more boldly designed. Smooth, sage-green patina covers the entire surface.



NUMBER FORTY-THREE (38.5)

NUMBER FORTY-THREE

STYLE AND CHRONOLOGY

This unique vessel, while it conveys an effect of free fantasy in its metamorphic animal components, is simpler in design than it appears at first sight. Except for monocular dragons of highly abstract character on the foot and upper part of the body, and a larger dragon, of which only the head is easily recognizable on each side of the lid, all composed so loosely and in such narrow bands that they scarcely stand out from the spiral filling, only three creatures are represented: the tiger mask at one end of the cover, the owl mask at the other, and the fowl that makes up the whole lower part of the vessel and the handle. Most other examples of *kuang* are iconographically more complex, with a richer menagerie of beasts represented. The four most commonly found on *kuang* – the fish, elephant, bird, and hare – are absent here. The gracefully curving profile is also unusual in *kuang*. The scale pattern that covers the neck and body of the bird, here serving for feathers, appears frequently, with different representational functions, on other vessels in animal form – for instance, on the trunk of the elephant *huo* Number 40, and on the double-ram *tsun*, in the Nezu Museum and in the British Museum.¹⁴³ A *kuang* with some points of kinship was first published by antiquarian Huang Chün,¹⁴⁴ and later entered the Sumitomo Collection.¹⁴⁵ The shape appears to be similar, as is the basic design of the lid with tiger and owl masks resembling those on this vessel. However, where the tiger on our *kuang* exists only as a mask, that on the Sumitomo vessel is complete with a body which is rendered in relief on each side of the spout, its front legs reaching forward and ending in protruding claws, its hind claws and tail represented on the foot. The owl at the opposite end is likewise furnished with legs and claws, a feathered breast (the scale pattern), and wings. A handle of the standard C-shaped variety, surmounted by the mask of a horned beast, has partly broken away. The

¹⁴³ Mizuno, *In shū* . . . , Pl. 75; and Yetts, *Eumorfopoulos* . . . , vol. I, Pls. XIII and IX.

¹⁴⁴ Huang, *Tsun ku-chai* . . . , III, 19a–b.

¹⁴⁵ Sumitomo, *Sen-oku* . . . , Supplement (New Acquisitions), Pl. I, No. 241. A vessel closely related to this one in design was formerly owned by C. T. Loo; see Florance Waterbury, *Early Chinese symbols* . . . , Pl. 7; another is in the Fogg Art Museum; see Mizuno, *In shū* . . . , Pl. 54. Two others, one in the Metropolitan Museum (lacking a top) and the second in the Norton Gallery, West Palm Beach, were published by Umehara in *In-kyo*, Pl. 109 and 110 respectively.

plan of the vessel is in a sense more logical than that of the Freer *kuang*, but the result is decidedly grotesque; the latter, on which the body of the fowl replaces the other two, with its wings presumably doubling as the wings of the owl, is far more harmonious.

TECHNICAL OBSERVATIONS

The vessel was cast apparently in a two-piece mold. Mold marks show plainly along the median line especially where they cross the foot. On the head of the bird which serves as a handle, join traces follow the top of the ears indicating transverse divisions in the mold for the top of the head. The bottom has a coarse cast-in mesh pattern common to many bronzes of this type. The hard clay ring about the inside of the foot appears to be residue from the original clay mold. The lid is nearly devoid of mold join traces, and there are indentations inside opposite the owl's ears and his beak. The inscription of two characters is cast inside both the bottom of the vessel and lid. A few small blow holes occur on the inside of the vessel, but otherwise the casting is of high quality. There is slight evidence of one chaplet on the inside bottom.

The surface has a high quality tin-oxide patina, stained green by copper. There are also scattered small patches of malachite and cuprite, and there are a few small patches of earthy accretion.

Scattered areas of the surface which fluoresce with pinkish tone in ultra-violet light have been touched lightly with paint, apparently for the purpose of concealing some of the reddish cuprite.

Composition: Sample taken from foot of vessel.

Wet chemical analysis: Cu 69.1%; Sn 15.1; Pb 13.9; Total 98.1.

Sample taken from rim of vessel: Cu 68.5; Sn 16.3; Pb 13.4; Total 98.2.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.4; Co 0.01; Ni 0.01; As 0.8; Sb 0.03; Bi < 0.03; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.06.

NUMBER FORTY-THREE

INSCRIPTION

This inscription of two characters comprises a drawing of a building apparently constructed on a raised platform of tamped earth – a characteristic element in Shang and later building design – and a *ch'i*-axe. The latter, with three protuberances on each side and a hole pierced through the butt end, is well confirmed by recent archaeological finds (see *Feng-hsi Report*, Pl. 88, No. 2). A more detailed representation of this inscription appears in a *kuei* (*Hsü-yin* A.40a) and shows clearly that a *ch'i*-axe forms the basis of the drawing. In several other inscriptions the building-on-a-platform graph is combined with the graph *ching* “mound,” “capital city,” which circumstance seems to suggest the interpretation above to be reasonably well founded. Only major buildings were constructed with an earth platform.



COVER



VESSEL



Detail of bottom (natural size)

Kuang

Early Chou dynasty (late 11th– early 10th century B.C.)

Inscription of eight characters inside the bottom

Height, 22.9 cm. (9 in.)

Width, 24.8 cm. ($9\frac{3}{4}$ in.)

Weight, 2.69 kg. (5 lbs., 15 oz.)

Accession number 49.10

The vessel is rectangular in shape, and both body and cover are richly decorated in high relief. The spout end of the lid consists of a powerful feline mask with bottle horns. A flange runs back on the top of the head like a mane, and on each side of this are winged birds. The back end of the lid seen from above consists of a bird mask. The main decoration of the body is a powerful *t'ao-t'ieh* mask on each side centered on a flange. Notched and hooked flanges appear again at the corners. Above and below this are zones of bird and dragon forms. The handle which seems to be a recent replacement has a bird-like body with feet, wings, neck, and beak recognizably portrayed. The bird's head is held in the mouth of a monster which tops the handle with great curving horns. The surface is covered with an even, gray-green patina which is set off by a black material in the intaglio areas.



NUMBER FORTY-FOUR (49.10)

NUMBER FORTY-FOUR

STYLE AND CHRONOLOGY

Since the inscriptions in the lid and body of the vessel offer no positive indication of its date, the best evidence is the close resemblance of the decor to that on the *fang-i* Number 38. Even more closely related is the *fang-i* in the Nezu Museum,¹⁴⁶ on which the treatment of the flanges is virtually identical, with the hooked pattern rendered in sunken line and depressed areas on the surfaces instead of in openwork as on the Freer *fang-i*. The Nezu vessel belongs to the Jung-tzu set, datable by inscriptions to the time of King K'ang, 1004–967.¹⁴⁷ This set, like that to which our big *fang-i* belongs, was reportedly found at Lo-yang, and the style represented on the vessels of this group may have been local to that area, and practiced there during the first half-century or so of the Chou dynasty. One feature which distinguishes the present *kuang* from all the others, the boldness with which the *t'ao-t'ieh* and other elements stand out from the spiral ground, is purely the result of black pigment having been painted into the *lei-wen* and other grooves, as described in the Technical Observations; in its original form, it must have resembled the others more closely.

The fact that the handle is a later addition, probably to replace an original handle that broke off, is indicated not only by technical examination (see below) but also by the fact that the lower attachment of the present handle cuts off the tail of a cicada rendered in sunken line on the flat surface beneath the handle. The handle was probably copied from some other *kuang*, such as the Chu-nü *kuang*,¹⁴⁸ a vessel of similar shape on which the handle is almost identical in design. Otherwise, the Chu-nü *kuang* would seem to fall slightly before ours as its decor preserves more of the Shang character. Mizuno dates it to the very end of Shang or beginning of Chou. Another example closely related in shape, probably approximately contemporary with ours, is in the Sumitomo Collection.¹⁴⁹ The flanges are the same in profile, but less elaborate in surface

¹⁴⁶ Mizuno, *In shū* . . . , Pl. 105.

¹⁴⁷ Mizuno, *op. cit.*, pp. 34 and 49.

¹⁴⁸ Mizuno, *In shū* . . . , Pl. 81.

¹⁴⁹ Sumitomo, *Sen-oku* . . . , Suppl., Pl. II, No. 242.

pattern; a band of vertical ribbing, of the sort commonly found on bronzes of the early Chou period, encircles the body. Differences between it and ours probably reflect variations between local styles, with the Sumitomo piece belonging to a tradition continuing from the Shang workshops and ours to a new and specifically Chou style.

TECHNICAL OBSERVATIONS

The vessel is directly cast apparently in a four-piece mold with the principal mold joins running vertically along the center flanges. Mold marks show prominently along the median flange of the lid and faintly between the horns of the forward masks and the ears of the rear mask. Close inspection of vessel and lid show well-concealed chaplets symmetrically placed in both. The characters of both inscriptions are deeply cast, and so are the lines of the decor.

The underside is plain except for four small brackets, one on the inside center of each wall of the foot.

An important feature of this vessel is the handle which appears to be a modern replacement. This was first revealed when the object was examined in ultraviolet light. The entire surface about the handle, horns of the dragon, and of the adjacent side of the vessel fluoresced strongly. This led to the discovery that the handle is joined to the vessel with soft solder. Analysis of the handle metal shows that the composition is quite different from metal of the body. It is essentially a copper-zinc alloy: Cu 59.4%; Sn 5.3; Pb 8.0; Fe 1.2; Ni 1.6; Zn 20.4; Total 95.9. The metal of the handle is yellower and softer than the metal of the vessel. Probing the join of the handle to the vessel shows that stumps of an original handle exist. X-rays reveal the break and solder repair clearly; they also show that there is a soft solder repair near the tip of the hook at bottom of the handle. A repair here is difficult to explain. The join and adjacent areas were covered thinly with a gray paint and also with patches of imitation blue and green copper corrosion products to conceal the repair. These contain modern pigments, mostly Paris green and Prussian blue, mixed with chalk. The black that lines the sunken decor is black paint applied with a fine brush. It is quite different from the black

NUMBER FORTY-FOUR

filling found on other bronzes of this series, and it was probably applied at the same time the repairs were made.

The vessel proper is covered with a fairly uniform grayish tin-oxide patina with greenish undertone. There are scattered patches of copper corrosion crusts.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 78.0%; Sn 19.5; Pb 0.4; Total 97.9.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Fe 0.8; Co 0.02; Ni 0.02; As >1.0; Sb 0.1; Bi 0.05; Cr 0.002;

Mg 0.002; Mn <0.001; Si 0.01.

INSCRIPTION

Both the vessel-inscription and the lid-inscription appear to be cast. In the latter the clan-sign is misplaced. The earliest published record of this is in a catalogue issued in 1870. Prior to this and from about 1850 three other vessels each with the same inscription appeared in various catalogues compiled or published during this twenty year period. There is a somewhat complex bibliographical background to be considered in respect to the contention that the whole series should be regarded with strong suspicion including this and two further inscribed vessels of more recent appearance. The vessel inscription reads:

1. Sheng made for Fu-Hsin (this)
2. valuable and honoured *i.* Clan sign

That in the lid with the misplaced clan sign reads:

1. Sheng made for Fu-Hsin (this)
2. Clan sign.
3. valuable and honoured *i.*

NUMBER FORTY-FOUR



COVER



VESSEL

Kuang

Gift of Mr. and Mrs. Eugene Meyer

Early Chou dynasty (late 11th– early 10th century B.C.)

No inscription

Height, 31.4 cm. (12 $\frac{3}{8}$ in.)Width, 31.3 cm. (12 $\frac{3}{8}$ in.)

Weight, 4.59 kg. (10 lbs., 2 oz.)

Accession number 61.33

The most striking feature of this exceptionally powerful vessel is the great monster mask at the front of the lid with its curling horns, like the horns of the *Ovis poli*. On the back of this monster lies a dragon form with bottle horns giving the curious impression that the main monster has two different sets of horns. The back of the lid is again a bird mask with something like buffalo horns at the top. A fish, a tiger, and an elephant are among the animals identifiable on the *lei-wen* ground. The body consists of a bird-like design at the front with a beak protruding below the spout. Ears stick out at right angles from the vessel behind the bold round eyes, and the wings consist of coiled dragons. The two front legs, triangular in section and broad like the legs of *chia*, have clearly defined birds' legs and claws in relief. The back of the vessel consists of a monster mask, and the two legs are made up of human forms with snake-like bodies wrapped around the lower parts. The handle, as in the case of the previous *kuang*, is made up of a monster head holding in its mouth the top of a bird's head. In this case, however, the representation of the bird is complete; and the legs, which terminate in human feet, stand on the ground. An even, glossy olive-brown patina covers the whole surface of the vessel. (*See pl. 45 and fig. 34.*)



NUMBER FORTY-FIVE (61.33)

STYLE AND CHRONOLOGY

The *kuang* with legs seems to be rare. The only comparable example may be a vessel in the Fujita Museum, Osaka, which is similar but simpler in design.¹⁵⁰ The rear legs of the Fujita *kuang* have cicadas on their surfaces instead of the human-head, serpent-bodied demons, and the handle is less elaborate, with a fish-dragon for support where our vessel has a grotesque pair of humanoid feet as totally superfluous additions that only add to the no doubt intentional effect of oppressive excess.

Both these *kuang* belong to a group of Shang or early Chou bronzes that tend to depart from conventional vessel shapes in the direction of free plastic sculpture. Some take the forms of animals as noted in the discussion of the *huo* Number 40. Others, such as these two and the Sumitomo and Cernuschi *yu* referred to below, are based on standard vessel types, but with the basic shape radically altered, chiefly through the addition of heavy appendages and high relief elements. Behind this development, which is paralleled by the appearance of heavy spikes, lugs, etc. in early Chou vessels in other styles such as the *yu* Number 50 and the *kuei* Number 66, we may recognize an advanced technical mastery of the bronze medium, and a new awareness of the special properties that distinguish it from clay, wood, or other materials that earlier bronzes had tended to imitate. Bronzes of this group have a number of stylistic features in common, as for example the dispersion of elements of the surface decor and these elements executed in relief against *lei-wen* grounds. Often the relief elements are decorated with sunken linear designs such as scale patterns, striation, and sometimes feather patterns. Another characteristic shared by this group is the remarkable profusion and variety of creatures that occur on a single vessel. Extreme examples of this tendency are found on the two *kuang* (Fujita and Freer) and on the two *yu* (Sumitomo and Cernuschi).¹⁵¹ These two pairs of vessels stand somewhat apart from all others in sheer

¹⁵⁰ Mizuno, *In shū . . .*, Pl. 10. Another, excavated at Yen-tun-shan and also early Chou in date, is published in *Hsin-chung-kuo . . .*, pl. XXXIX top.

¹⁵¹ Mizuno, *op. cit.*, Pl. 69; and Salmony, *Asiatische Kunst*, pls. 26–29.



FIGURE 34

exuberance of invention, in bizarre juxtapositions, and in their relative freedom from the strict principles of design, such as symmetry and segmentation, that govern most Shang and Chou bronzes.

We may note that some of the features that distinguish bronzes of this

group, the relatively naturalistic rendering of animals, the free and unsymmetrical combination of animal forms into crowded, sometimes teeming compositions, the use of striation on animal bodies, are characteristic of Ordos and other nomadic bronze art in later centuries; and we may wonder whether this style was not somehow affiliated with, or influenced by, the styles of some nomadic people of the borderlands of China.

A *kuang* of more conventional shape, with the common oval foot, in the Sumitomo Collection,¹⁵² is related to this in a number of points. The mask at the forward end of the lid is similar, but is furnished with bottle horns instead of ram's horns. The elephants on the lid of ours and just below it on the Sumitomo piece agree closely in design. Curiously, what appears to be a bird's beak protrudes from the top of the flange bisecting the forward surface of the Sumitomo vessel. This is probably the vestige of an owl that occupied the front of some earlier vessel on which this is partly based, as it does on the Freer *kuang*. The lid is surmounted by a serpent-dragon followed by a bird, the same combination to be seen in that position on the ram in the Fujita Museum;¹⁵³ this, in turn, has curling horns closely resembling those on our *kuang*. Such correspondences as these, items from a common repertory on which the bronze designers drew, may in time permit us to distinguish the output of particular workshops among Shang and Chou bronze vessels.

TECHNICAL OBSERVATIONS

The vessel, in spite of its intricate shape and deep undercutting, is cast in only three parts: the vessel proper, handle, and lid. The vessel apparently is basically cast in a two-piece mold assembly by direct casting. The inter-leg core parting lines are located along the edges of the legs, but no divisions are made vertically through their center faces. The legs are not solid but are cast with long narrow slots on each of the two inside faces which open into a clay core that fills the interior (*fig. 35*). The core clay is warm gray in color and is quite soft much like the core residues in the

¹⁵² Sumitomo, *Sen-oku*, II, 94.

¹⁵³ Mizuno, *op. cit.*, Pl. 74.



FIGURE 35



FIGURE 36

inner recesses of the lid. Some of the legs show a slight shoulder where they join the body of the vessel. The bird beak under the pouring spout is cast integrally with the vessel; it is cored with clay, and there are openings at the base of its top and bottom. The two projecting ears on the side of the spout and the two smaller ears farther back are all solid and are cast as one with the vessel. The high-relief dragons and human heads, in contrast to the beak and the ears, have corresponding indentations on the vessel inside.

The handle is an open-core casting, revealing the reddish baked clay of the original core which is still in place. In some respects the handle resembles the common open-core handles of vessels of the type *kuei*, but the method of joining is quite different. There is a seam at the join of handle to vessel which indicates the vessel was precast and the handle was later cast on to it. The spillage at the join is from handle onto the vessel (*fig. 36*). Under the upper handle join, and half buried in the clay core, is a protruberance from the vessel which may be part of a boss or lug which served to engage the handle and hold it securely by mechan-

ical means to the body. If such a lug exists at the lower join it is concealed by the clay core.

The method used to fabricate the lid is more difficult to understand. Like the vessel it appears to be cast in a two-piece mold with divisions running more or less at right angles over the animal head foreheads, horns, ears, and jaws. The piscamorphic horns on the *t'ao-t'ieh* at the back of the lid, and the two-legged horned reptile astride the neck of the ram are cast as one with the lid. On the under surface there are corresponding indentations still partially filled with original clay core. Although the ram's horns also appear to be cast as one with the lid, there are no corresponding indentations on the inside. There seems to be a longitudinal join extending along the spine of the horned dragon, and it extends to the proper right side of the buffalo's forehead where it disappears. Below the nose of the buffalo it seems to pick up again, and it ends at the lid rim. A transversal join is also barely visible between the front of the horned dragon and the rear of the ram's horn. Traces of another horizontal join are visible on the two lower sides between the *lei-wen* and the lower part of the principal mask. In all there appear to be six mold sections for the lid alone. The ram's horns like the legs of the vessel are cast hollow and cored with baked clay. The back surfaces of both the ram's horns and the buffalo horns are undecorated which may have some significance in respect to the way the mold sections were made and how they were disposed. An odd shaped metal plug under the jaw of the buffalo looks like a repair to a casting flaw.

The surface of the vessel is covered all over with a lustrous dark brown tin-oxide patina which is revealed along the deeply chipped edges and rims. There are small patches of botryoidal malachite, especially on the cover; and the inside of both vessel and cover are thinly covered with rough green corrosion crusts. The condition is excellent.

Composition: Sample for analysis taken from proper left front leg.

Wet chemical analysis: Cu 73.4%; Sn 11.3; Pb 12.5; Total 97.2.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.01; Ni 0.005; Sb 0.01; Mg < 0.001; Si < 0.001.

Kuang

Recent

Inscription of 16 characters in both vessel and cover

Height, 21.3 cm. ($8\frac{3}{8}$ in.)Width, 23.5 cm. ($9\frac{1}{4}$ in.)

Weight, 2.69 kg. (5 lbs., 15 oz.)

Accession number 12.72

In general style this *kuang* is an imitation of Number 44 (49.10). At the front of the cover is a monster head with bottle horns, and at the back another animal mask with cat-like ears. Along the cover between these two are dragons in high relief on a ground of *lei-wen*. The rectangular body has *t'ao-t'ieh* masks on all four sides, and there are flanges at the four corners and in the middle of the front and both sides. A monster mask tops the handle at the back. All relief parts of the decoration are inlaid with either silver or gold. Except for this, the vessel has a dull brown patination over the whole surface. The workmanship is of poor quality throughout. It seems likely that the vessel is an archaism perhaps made in Ming or Ching times on the basis of an illustrated book.

At the time he purchased this from Nan Ming Yuan in Tientsin, Mr. Freer made this comment, "Patches of regilding mar its appearance; but I believe it to be a genuine specimen of Chou."



NUMBER FORTY-SIX (12.72)

NUMBER FORTY-SIX

STYLE AND CHRONOLOGY

This imitation belongs in the same category with the *lei* Number 19, featuring inlay in broad areas and spiral wire on flat elements of decor raised slightly above a crudely rendered *lei-wen* ground. As in that case, it seems likely that a woodcut picture, rather than any actual bronze vessel, was the model. Here it is the simplification and misunderstanding of the monoculous dragons, in particular, and the way each of the decor elements is encircled by several shallow grooves following its contours and setting it off from the *lei-wen* proper, that reflect the illustrations in antiquarians' catalogues rather than any pieces of genuine antiquity. The prototype of this *kuang* with its square base and prominent flanges must have been early Chou.

TECHNICAL OBSERVATIONS

The absence of mold marks or parting lines indicates the vessel and lid were probably not cast in a piece mold. The handle is tubular cast, and inside it is a fine black powdery filling which is a mixture of carbon black and earthy material containing much fine quartz. Close examination of juncture of handle to body shows no evidence of seam or mechanical join. Likewise, all the flanges seem to be cast as one with the vessel. The corners of the bottom are crossed by double parallel raised lines in the form of an X. There are four small brackets, one centered at each side where the foot joins the bottom. A sixteen-character inscription is crudely cast inside the bottom of the vessel and again in the lid. No chaplets were observed.

It seems probable that the inlay depressions were cast-in, not cut in later. In many places the broader inserts of silver and gold show at their margins a narrow strip of the same metal which suggests that the inlay metal was crimped into a groove provided at the edges of the depressions. A similar technique seems to have been used in fixing the inlay on *huo* Number 111.

The unaltered bronze surface is brown and metallic in tone. Although there are scattered thin patches of malachite on inside surfaces and on the inside of the foot, there is little on the exterior. There is one small

patch of artificial patina made from coarsely ground malachite located near the upper handle join. There are no indications that the vessel was ever buried.

The inscription is cast, but the characters are crude and shallow. The strokes in the lid are heavily filled with malachite, but in the vessel they are free.

Composition: Sample taken from a flange.

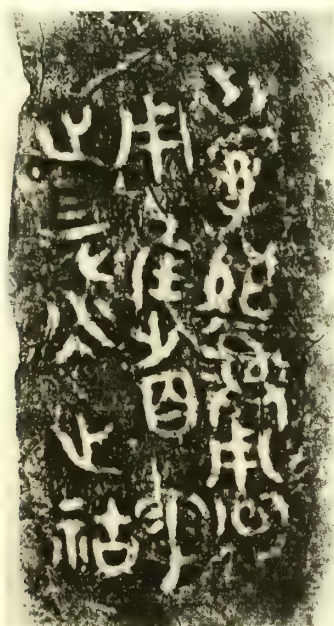
Wet chemical analysis: Cu 73.4%; Sn 7.7; Pb 15.8; Zn 2.2; Total 99.1

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.1; Co 0.002; Ni 0.09; As 0.2; Sb 0.2; Bi 0.07; Mg < 0.001.

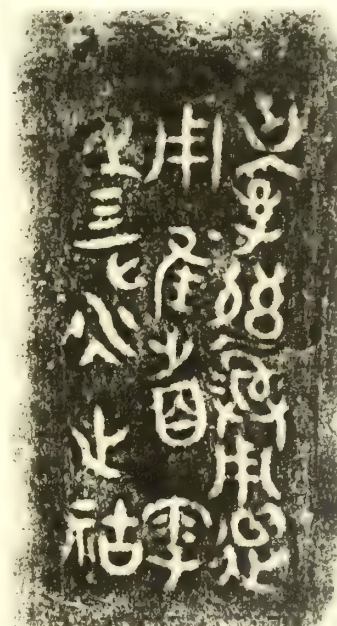
This is one of the few vessels in the collection in which zinc content is greater than 1 percent.

INSCRIPTION

It is immediately evident that the inscription is not a proper text. It is merely a jumble of archaic-like characters selected haphazardly, no doubt, from copies of inscriptions of Sung period date (cf. the Shao-hsing inscription Jung, *Shang-chou* . . . , vol. 1, p. 189). The third character



COVER



VESSEL

NUMBER FORTY-SIX

(line 1) in our inscription is very close to the fourth line (line 3) of the Shao-hsing inscription. The ductus of the script in both is almost identical. It would appear, therefore, that the compilation of the inscription must be dated later than Sung. Probably it was the intention of the manufacturer to simulate an archaic inscription, but unwittingly he chose Sung period examples as a guide. In this connection we may recall Juan Yüan's incorporation of three Sung period archaistic inscriptions in *Chi-ku-chai* in the belief that they were actually pre-Han inscriptions (*Chi-ku-chai* 5.4, 7.14, and 7.15). Jung Keng has reported several instances of similar errors in writings dating from Sung times in his chapter on facsimiles (*Shang-chou*, cf. pp. 186, 188). If scholars erred in this manner it would not be remarkable to find a bronze artisan of Ming or Ch'ing times creating an inscription like the present one.



Detail of silver inlay on tip of vessel ($\times 4$)

Yu

Shang dynasty (middle-late An-yang, 12th– 11th century B.C.)

No inscription

Height, 24.2 cm. (9½ in.)

Width, 21.5 cm. (8½ in.)

Weight, 3.40 kg. (7 lbs., 8 oz.)

Accession number 42.14

This vessel takes the form of two owls standing back to back and is supported on the four legs of the two birds. On the wing and breast areas scale patterns, both plain and with *lei-wen*, are used to simulate feathers. Crested birds with bottle horns are placed on *lei-wen* backgrounds above and below the wings; and bottle-horned *k'uei* dragons coil part way around each foot. Large horns lie flat on the top above the eyes, and the bold beaks protruding at both ends are decorated in intaglio. On each side is a vertically perforated lug in the form of a monster mask, and on top is a roof-shaped finial decorated with inverted *t'ao-t'ieh* that are notable because they are the only ones on this vessel. On the otherwise plain bottom, the space between the four feet is decorated in intaglio with a large coiled serpent dragon with bottle horns, a simplified version of the one that decorates the *p'an* Number 3. Above and below this are *t'ao-t'ieh* masks, the top one facing up, the lower one down. In spite of the stylization and the distracting and unrelated elements, ornithologists recognize this as a representation of the species *Bubo bubo*, the European and Asiatic relative of the Great Horned Owl of North America.



NUMBER FORTY-SEVEN (42.14)

NUMBER FORTY-SEVEN

STYLE AND CHRONOLOGY

The double-owl *yu* is common among Shang and early Chou vessels. Among the numerous examples, those with bodies bare of ornament make up the majority.¹⁵⁴ The other group to which ours belongs are by contrast richly ornamented over their whole surfaces with symmetrically arranged animals on each side of the median line set against the customary spiral filling.

The earliest in the group are probably those in the Pillsbury, the Sumitomo, and the Hiroumi Collections.¹⁵⁵ The decor on all these is mostly flat, with only wings, eye, and horns of the owls slightly raised; no flanges break their sides, and small animal masks are located below the attachment of the handles. An example in the Fogg Art Museum is similar but with slightly higher relief.¹⁵⁶ Our *yu* falls logically next in the sequence, with bottle-horned birds in fairly bold relief above and below the wings and other elements raised from the surface, such as the *k'uei* dragons curled around the legs, which are rendered only in sunken line on the earlier pieces. Flanges now bisect the sides, displacing the beast mask, and appear also on the breasts and crests of the owls. Presumably still later are the two double-owl vessels of more complex design found also in the Sumitomo and Hiroumi Collections,¹⁵⁷ on which projections break the outlines of the flanges, the *k'uei* dragons proliferate, and up-turned beaks (seen already in milder form on the Fogg Art Museum vessel) further disrupt the restrained silhouette of the earlier forms.

TECHNICAL OBSERVATIONS

The vessel was cast in a two-piece mold by direct casting, but it is so highly finished that only vestiges of the joins can be seen. There do not appear to be any chaplets. The two rope holders are cast as one with the

¹⁵⁴ E.g. Waterbury, *Early Chinese symbols* . . . Pl. 57–61, and Umehara, *SKS/J*, I, 40–41. Others in the Sackler Collection (525), the Brundage Collection (B.60.81, and B.60. B.947), the Minneapolis Institute of Art (50.46.27) and the Metropolitan Museum (43.28). Our No. 48 is an imitation of this type.

¹⁵⁵ Karlgren, . . . *Pillsbury* . . . , No. 24, Pl. 36. Sumitomo, *Sen-oku* . . . , No. 70. Umehara *SKS/J*, I/38.

¹⁵⁶ Mizuno, *In shū* . . . , Pl. 48.

¹⁵⁷ Sumitomo, *Sen-oku* . . . , 69a–b, and Umehara, *SKS/J*, I, 37.

vessel. Join traces indicating the meeting of the outer mold assembly and the inter-leg core are easily discernible. The short legs are hollow and open at the ends to expose the original clay cores retained in them. Between each pair of feet on the underside where the scale and *lei-wen* feather pattern of the body meets the flat bottom, is a distinct ridge or fault which is obviously a join line of the mold parts (*fig. 37*).



FIGURE 37

NUMBER FORTY-SEVEN

The birds on the upper part are in high relief and seem to have been made separately from identical molds or stamps. The raised circles in the narrow band around the rim appear to be from impressions made in the mold sections by the end of a tube.

The serpent motif underneath is quite different in character from the decor on the other parts of the vessel. Here the sunken lines are deep and narrow and have an incised appearance, which suggests that this decor element was modeled in a technique unlike that used to model the decor of the vessel sides. The lid, like the vessel, is cast from a two-piece mold, and the mold joins are along the long axis. The beaks of the owls are solid.

The lid knob apparently is not original. In the general description it was pointed out that the slanting sides bear inverted *t'ao-t'ieh* while the vessel and lid have none. On examination it was discovered that the post of the knob was inserted into an irregular hole in the top of the lid, secured there with soft solder, and the joint concealed by paint and plaster. The knob and post are a single solid piece; the color of the metal is redder than the metal of the lid. Analysis of a sample taken from the knob stem shows Cu 83.6%; Sn 11.2; Pb 4.0; Total 98.8. This leaves no doubt that the knob is foreign to the lid.

The surface is covered with an elegant tin-oxide patina tinged uniformly pale green. Much of the sunken decor is filled with red cuprite and some earthy residues. The lower part of the interior surface is glossy and uncorroded, but the upper part is thickly encrusted with malachite. In a small patch of corrosion crust in this area, the impression of a finely woven fabric, probably silk, can be faintly seen. The cover inside is quite colorfully encrusted with mineral products.

Composition: Sample taken from edge of owl's beak on cover.

Wet chemical analysis: Cu 74.4%; Sn 15.7; Pb 7.8; Total 97.9.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 1.0; Co 0.001; Ni 0.005; Bi 0.03; Mg <0.001; Mn <0.001; Si <0.001.

Note: Spectrometric analysis on a sample of the vessel taken near one leg gave almost identical results.



Lid showing knob removed

Yu

Recent

No inscription

Height, 22.2 cm. ($8\frac{3}{4}$ in.)

Width, 19.0 cm. ($7\frac{1}{2}$ in.)

Weight, 2.75 kg. (6 lbs., 1 oz.)

Accession number 11.50

The covered vessel in the general form of two birds back to back has annular rings on the sides which once served to attach the handle, now missing. Two monster masks in relief form the cover decoration, and the finial is in the typical form of a cluster of vertical cicadas. The body is simply decorated with the stylized wings of birds done in high, smooth relief. The brownish patina shows some areas of malachite encrustation. Mr. Freer considered it a genuine Chou or Han specimen. Mr. Wenley thought it might be a Sung reproduction.



NUMBER FORTY-EIGHT (11.50)

NUMBER FORTY-EIGHT

STYLE AND CHRONOLOGY

The vessel type is late Shang in origin, and a similar piece, and another missing its lid but otherwise closely related, were excavated at An-yang.¹⁵⁸ Other double-owl *yu* without fine surface decor are found in a number of collections.¹⁵⁹ Two examples, neither quite identical in design to the present piece, are reproduced in woodcut in *Po-ku t'u-lu*.¹⁶⁰ The angular, debased character of the broad decor elements on the present piece suggests that such woodblock designs may have served as the inspiration of this vessel if not as the actual model.

TECHNICAL OBSERVATIONS

The vessel and the cover are each cast in a single piece though probably not in a piece mold. There are no visible mold marks except those that show vertically on each side of the two handle rings (*fig. 38*). The four legs are open at the bottom and are fully cored with clay. Depressions on the inside of the vessel correspond to the heavy bird wing decor on the outside. On the outward face of the top of each leg, a metal plug is located directly at the join of leg to body. These plugs may be chaplets or spacers, but other plugs in the vessel sides are obviously only repair patches. Three symmetrically placed holes under the knob of the lid expose a clay core which completely fills the knob and also extends down into the stem.

The surface is covered with black tarnish interrupted by scattered areas of natural malachite. The inside of the cover bears a nearly uniform layer of natural malachite which has the smoothness of green enamel paint, but is not.

Composition: Sample for analysis taken from edge of one leg.

Wet chemical analysis: Cu 78.0%; Sn 6.9; Pb 11.2; Total 96.1.

¹⁵⁸ Huang, *Yeh-chung* . . . , III, 1, 18, or Jung, *Shang chou* . . . , no. 647.

¹⁵⁹ Cf. the discussion of the *yu* No. 47.

¹⁶⁰ Ch. I, pp. 35 and 36.

NUMBER FORTY-EIGHT

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.2; Co 0.01; Ni 0.05; As 0.2; Sb 0.01; Bi <0.03; Al 0.05;
Mg 0.007; Mn 0.001; Si 1.0.



FIGURE 38

Yu

Shang dynasty (late An-yang, 11th century B.C.)

Inscription of one character inside bottom

Height, 36.5 cm. ($14\frac{3}{8}$ in.)

Width, 27.0 cm. ($10\frac{5}{8}$ in.)

Weight, 9.67 kg. (21 lbs., 5 oz.)

Accession number 40.11

The covered vessel with bail handle is richly decorated with various dragon and *t'ao-t'ieh* designs in relief on *lei-wen* grounds in three distinct horizontal bands plus the cover. Most unusual is the band of dragons with bottle horns and proboscidian snouts on the neck. Vertically the vessel is divided into four sections with bold heavily segmented flanges. A row of cicadas appears on the bail handle which terminates in two feline masks. The surface is covered with a grayish-green patina showing some areas of encrustation.



NUMBER FORTY-NINE (40.11)

NUMBER FORTY-NINE

STYLE AND CHRONOLOGY

This monumental vessel belongs to the same late An-yang phase of the bronze-caster's art as the *li-ting* Number 31; the close resemblance of the *t'ao-t'ieh* masks on the two vessels establishes their kinship. The shape is paralleled in vessels reportedly found in An-yang,¹⁶¹ including the characteristic profile of the flanges with extra pointed protrusions breaking the long segments on the mid-section of the body, and the up-turned projections from the lid at the ends of the long axis. In the case of some double-owl *yu*, these projections are to be understood as beaks,¹⁶² but here they have no such representational function as they clearly do not relate to the *t'ao-t'ieh* masks on the lid. The "trunked dragons," cicadas, and other decor elements are all well-known on Shang dynasty bronzes.

Other *yu* vessels related in shape have been assigned to the Late Shang period by Mizuno, Watson, Umehara, and Karlgren.¹⁶³ The early Chou stage in the development of this type is exemplified by a piece in the Ch'eng Ch'i Collection, Tokyo, with the pierced, hooked flanges typical of that era;¹⁶⁴ one in the Hakutsuru Museum, with zones of vertical ribbing on body and lid;¹⁶⁵ and, pre-eminently, by Number 50. These are all narrower in the body, proportionately, than the Shang examples, and exhibit less of the pear-shaped bulge in the lower mid-section.

TECHNICAL OBSERVATIONS

The vessel is a direct casting from a two-piece, four-division mold. True join traces can be seen along the flanges at the long axes of both vessel and cover. There is also a vestige of a join in the form of a vertical ridge or fault on the smooth band of the stepped-back collar of the vessel,

¹⁶¹ Umehara, *Kanan anyō ihō*, Pl. XXXII (Nezu Collection, Tokyo), and XXXIII (former Kawai Collection, Kyoto).

¹⁶² E.g. the example in the Fogg Art Museum, Mizuno, *In shū* . . . , Pl. 48.

¹⁶³ Mizuno, *In shū* . . . , Pl. 78. Watson, *Ancient Chinese bronzes*, Pl. 23b, a relatively small (8 $\frac{3}{4}$ in. in height example in the British Museum). Umehara, *SKS/J*, I, (Tenri Museum) and 55 (Hakutsuru Museum). Karlgren, . . . *Pillsbury* . . . , Pls. 22 and 23.

¹⁶⁴ Umehara, *SKS/J*, I, 62.

¹⁶⁵ *Op. cit.*, I, 68.

which is ordinarily concealed by the lid. The handle trunnions are cylindrical and are cast as one with the vessel in line of the pre-assembly mold joins; and the separately cast handle was probably sprung over them. Only one division is located at the center of the loop of the handle which in this case lacks the usual sectional divisions at the curves.

The lid is similarly cast. The knob of the cover was found to be partially hollow but not core filled. It seems to have been cast-on separately through a hole in the lid and the extrusion underneath looks something like a crude rivet. The heavy projections at the ends of the lid are core-filled with the baked clay still inside exposed by the comma-shaped openings on both sides. We can theorize that in order to secure the correct placement of these cores between the enclosing outer-mold sections, clay extension spacers of comma shape were originally built into the two sides of each core in much the same way as they were done on the lid of *yu* Number 50.

The decor on the end of one lid projection is blurred. Close examination shows the outline of a seam which indicates the presence of a patch or inset of metal possibly poured in to repair a fault in the casting. As a result the decor grooves in the area of the repair have registered poorly. The underside of the vessel is quite plain. There are no signs of chaplets. A notch and tenon just above the trunnion of one handle permits the lid to fit in only one direction.

The principal elements in the high relief decor are identical, but the *lei-wen* which surround them are not thus implying that the high relief was stamped on the model or in the mold with dies, but the *lei-wen* were cut by hand in the mold sections.

This vessel is one of the most solid and sound in the series; corrosion is only superficial. A thin layer of azurite covers the inscription cast in the bottom, and a little earthy material is lodged in the fossae of the design. Examination in ultraviolet light shows fairly extensive areas, mostly on the cover, that are touched lightly with green paint, obviously for the purpose of concealing patches of cuprite.

NUMBER FORTY-NINE

Composition: Sample taken from upper rim of vessel.

Wet chemical analysis: Cu 82.8%; Sn 14.6; Pb 3.7; Total 101.1.

Sample taken from edge of base of vessel: Cu 81.4%; Sn 13.6; Pb 3.5;
Total 98.5.

Sample taken from rim of cover: Cu 82.5%; Sn 15.1; Pb 2.0 Total;
99.6.

Sample taken from handle: Cu 89.0%; Sn 10.0; Pb 1.2; Total 100.2.

Additional elements estimated by emission spectrometry: Sample taken
from upper rim of vessel: Ag 0.1%; Fe 0.09; Co 0.008; Ni 0.01;
Bi 0.03; Cr 0.002; Mg < 0.001; Si 0.003.

Lead content of the cover is sufficiently lower than lead content of the vessel to indicate that possibly different alloy melts were used for each of the two members. The alloy of the handle is quite different (higher in copper and lower in tin and lead) from either vessel or cover. This suggests that the metal of the handle was deliberately made sufficiently elastic to permit it to be sprung onto the trunnions.

INSCRIPTION

The cast-in graph comprises a bird with a crest shaped in the form of a Ko-dagger axe. There are several other examples published in various catalogues which indicate that the graph functions as a clan sign – e.g. in *Chia-pien* (8.17) it is followed by the posthumous name-title *tsu-hsin* “Ancestor Hsin.”





Upper: Detail of joint of vessel and cover
Lower: Top view of cover

Yu

Early Chou dynasty (late 11th– early 10th century B. C.)

No inscription

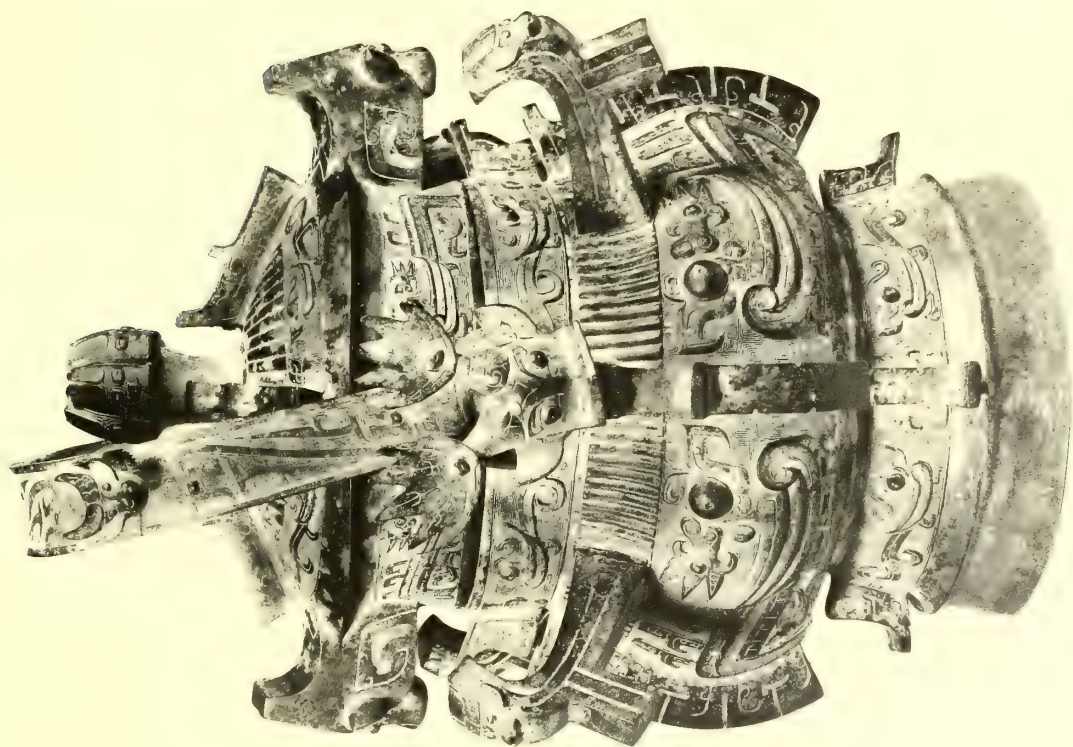
Height, 51.1 cm. ($20\frac{1}{8}$ in.)

Width, 35.0 cm. ($13\frac{3}{4}$ in.)

Weight, 23.83 kg. (52 lbs., 8 oz.)

Accession number 30.26

This covered vessel with bail handle is one of the most powerfully executed *yu* of the period. Decorated in four horizontal bands plus the cover, the whole thing is also divided vertically by four exceptionally heavy flanges. Birds of various forms on *lei-wen* grounds comprise the main motif. Four large heavy protrusions emerging from the vertically fluted band on the shoulder are decorated with buffalo masks; and similar masks appear on the lugs at each end of the lid and again in relief on the handle. The finial is a bud-like member consisting of six vertical cicadas in relief. A broad band of elongated dragon forms on *lei-wen* ground covers the handle. The surface is covered with a smooth, grayish patina with some areas of encrustation.



NUMBER FIFTY (30.26)

NUMBER FIFTY

STYLE AND CHRONOLOGY

This *yu* and the *kuei* Number 66 belonged originally, along with other vessels now scattered among different collections, to a second altar set reportedly found, like the well-known Tuan Fang set which is preserved in the Metropolitan Museum, at Pao-chi Hsien in Shensi Province. Umehara has published an old photo of this second set, on which the Freer *yu* and *kuei* vessels are identifiable.¹⁶⁶ If these two are representative of the set, it was generally better preserved and made up of pieces of higher quality than the Tuan Fang set.

A number of stylistic features indicate a date near the beginning of the Chou period. The zone of vertical ribbing is commonly found on bronzes of that era; the best-known example is the K'ang-hou *kuei*, in the Malcolm Collection, firmly datable by its inscription to the reign of King Ch'eng (1024–1005).¹⁶⁷ The heaviness and broken outline of the flanges are characteristic of early Chou style, as are the large birds rendered with curvilinear forms in bold relief. The reduction in the repertory of creatures represented, here confined to two (birds and oxen) contrasts both with the extravagance and variety of Late Shang vessels, those, that is, on which animal motifs are as numerous as they are here, and with the virtual disappearance of recognizable animal forms from later Chou vessels. The same combination of the birds and oxen is seen on the *kuei* Number 66, where the horned beasts dominate and the birds appear only as linear designs on the handles.

The shape of the vessel, tall for its breadth and given further height by a high foot, belongs to a post-Shang stage in the development of the *yu* type (cf. notes on No. 49). This relative slimness is negated, however, by the extraordinarily long and heavy projections which disrupt the silhouette of the vessel and invade the surrounding space in a manner akin to the styles of such contemporary sculptors in metal as Lipschitz and Roszak. Such bronzes as this, the *kuei* Number 66 and a few others¹⁶⁸ are

¹⁶⁶ Umehara, *Kyôsei-shô* . . . , Pl. 4. Umehara reproduces on Pl. 4 two views of the piece, mistakenly taking them for different vessels.

¹⁶⁷ Yetts, *An Early Chou bronze*; also Ch'en Meng-chia in *Kao-ku-hsueh-pao*, 1955, pp. 161–65.

¹⁶⁸ E.g. the *fang-i* formerly in the Higginson Collection, now in the Museum of Fine Arts, Boston, which has similar projections and also a zone of vertical ribbing. Cf. Umehara, *SKS/E*, I, 43.

evidently products of a short-lived outburst of ferocity of style in the early decades of the Chou dynasty, perhaps motivated in part by some technical innovations in the bronze-caster's craft which allowed this final break with ceramic forms and a completely idiomatic use of the medium.

TECHNICAL OBSERVATIONS

The vessel is an extraordinary piece also from the technical point of view. It is cast in seven members including vessel, lid, handle, and four figurehead protruberances. Both vessel and lid show join traces indicating the use of four-piece mold assemblies. On the vessel provision was made for the four precast figureheads by casting with the vessel four short rectangular posts with platforms interrupting the ribbed decor band. The protruberances, which X-rays reveal are core cast with thin walls, were hollowed out at their bases sufficiently to permit them to fit over the posts. They were secured to the vessel with hard solder which forms a smooth sloping shoulder at the join. Small splotches or buttons of metal on both vertical sides of the protruberance near the join appear to be caused by solder that has oozed through holes made to facilitate anchorage. Analysis of a sample of the solder shows Cu 71.8%; Sn 13.0; Pb 12.6; Total 97.4 which is similar to the composition of the vessel metal. The edges of the ribbon of solder on the vessel side are true and straight but on the protruberance side it is irregular and flows over for a distance of a centimeter or more.

A strange feature is the inward flaring lip of the vessel, but in this respect it is similar to the *yu* vessels Numbers 56 and 57. The flanges of both vessel and lid are solid and cast with the body. On the step of the rim of the vessel there is a raised line indicating a mold join. It continues down the side and for a short way onto the top of the flange. There are also faint traces of mold joins on tops of the lower flanges. The underside of the bottom, unlike most vessels of this type, is rounded; not flat. There are no criss-cross marks or brackets.

The fabrication of the lid, which fits the vessel very closely is peculiar, but in other ways. The large knob and the stem are clay-filled, and three perforations, which expose the inner core, are spaced symmetrically

NUMBER FIFTY

underneath. X-ray shows that the clay core is cone shaped and that it extends well down into the stem. A depression in the under surface of the lid coincides with the knob-stem. A small drilling through the area has revealed a flat irregular void about 2 cm. in diameter, beyond which a thin wall of metal separates the lid top from the clay of the stem core. This void may be a casting flaw. Also on the lid, and coinciding with the flanges above, are depressions about 1 cm. long and 2 mm. deep, which may be compared with those in *yu* Number 51 and the interior surface of *kuei* Number 66. On top of the lid are marked join traces on the thick flange ends facing the knob; but these cease abruptly where the vertical face of the flange joins the lid top, and do not continue across the circular area to the stem. There are two vertical mold marks on the knob stem in the line of the long axis. On one side of the plain band around the upper rim, are traces of two chaplets approximately midway between the flanges, but they cannot be seen on the opposite side.

The lid protruberances as well as the knob are core filled, and X-rays show that the walls are thin and that the inside surface follows faithfully the outside modeling. The core is exposed by the comma-shaped perforations on the sides. Further perforations may be noted: a rectangular one forming the mouth of each animal, one underneath the neck, and one on top of the neck, but not opposite each other. All of these perforations are more or less square or rectangular in shape; and they probably indicate the positions of spacers required to position the core prior to casting. Strangely there is no continuation of the major axis join line through either of the lid protruberances, but there are suggestions of horizontal join traces in line with the sharp shoulder edge of the lid; these are depressions not ridges. It is quite evident that the technique for casting the lid differs considerably from methods employed in numerous other lids of comparable structure and design.

The swing handle carries decor on both upper and lower faces; and the mold was done in three sections, joining at the center and at the curves of the loop. Some join traces may be seen along the horns, ears, and jaws of the animal-head terminals. At the curves of the loop two animal heads are placed astride the mold-join lines; they are hollow and

clay cored, and the core may be seen in a small hole on the top of each head. The handle eyes are cast through loops which in turn are cast integrally with the vessel. The underside of each eye is rough and bears vertical ridges which may indicate the location of the sprue through which the handle metal was poured. The two heads with pointed antlers which surmount the handle eyes were cast as one with the handles.

The details of decor on both vessel and lid, as well as the handle, are provocative and raise questions about fabrication. On the vessel proper the main decor on diagonally opposed fields, and the *lei-wen* ground as well, are identical suggesting that dies were impressed on the mold sections in the orthodox way. On the lid, however, the main decor on two diagonally opposed sections on the vertical part of the lid is identical in respect to contours, but the *lei-wen* grounds are not. This indicates that the bird figures were made with a die but that the *lei-wen* was added later. There are other inconsistencies as well. The legs as well as the positions of the small birds which are in rounded relief differ in detail.

The surface is thinly and uniformly covered with gray-green, tin-oxide patina. A considerable amount of dull green malachite covers the interior. There is little earthy material, but the decor grooves of the flanges carry a filling of fine gray clay not found elsewhere in the sunken decor of the vessel.

Composition: Sample taken from base.

Wet chemical analysis: Cu 67.4%; Sn 14.0; Pb 13.4; Total 94.8.

Sample taken from the lid: Cu 70.4%; Sn 13.7; Pb 12.8; Total 96.9.

Sample taken from a projection: Cu 68.8%; Sn 13.1; Pb 14.0; Total 95.9.

Sample taken from the handle: Cu 73.5%; Sn 12.2; Pb 11.6; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.08%; Fe 0.7; Co 0.02; Ni 0.02; As 0.07; Sb 0.05; Cr <0.001; Al 0.005; Mg <0.001; Mn <0.001; Si 0.06.

Yu

Recent

Inscription of one character in vessel and cover

Height, 41.3 cm. (16 $\frac{1}{4}$ in.)

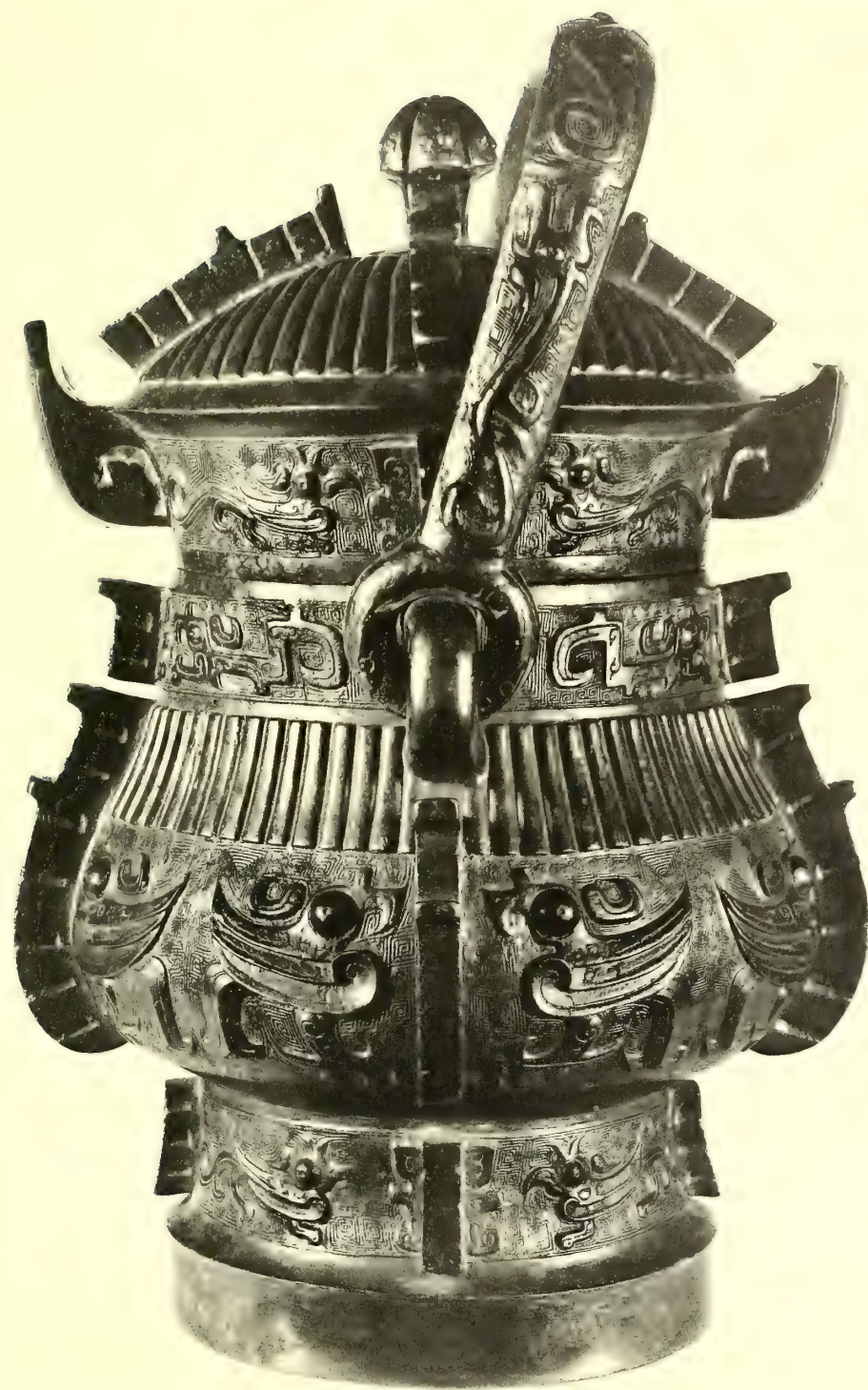
Width, 26.2 cm. (10 $\frac{1}{4}$ in.)

Weight, 10.57 kg. (23 lbs., 5 oz.)

Accession number 11.55

The covered vessel in typical *yu* form is marked by extremely heavy flanges and a thick handle attached to the long sides. The decoration of vertical fluting and crested birds and dragons on *lei-wen* grounds are executed very much in the early Chou style, comparable as a whole to that on Number 50. A smooth, dark brown patina covers the whole vessel with minor areas of malachite encrustation.

This piece came from Lee Van Ching of Shanghai, and Mr. Freer assigned it to Chou from the first. His note reads, "Very fine specimen of the Chou dynasty. Compare with S.I.85 (No. 52, 09.260). See similar specimen illustrated in Thoms' *Ancient Chinese vases of the Shang dynasty*, page 55; also illustration on page 52 which shows a very strong relation in details of design including the fabulous birds 'Hwang' and 'Fung'."



NUMBER FIFTY-ONE (11.55)

NUMBER FIFTY-ONE

STYLE AND CHRONOLOGY

This *yu* is an imitation of a vessel very much like one in the Pillsbury Collection.¹⁶⁹ Except for the handles the two pieces are very close; and the bands of vertical ribbing, the pairs of confronted birds, and the heavy flanges all tend to suggest an early Chou date. Karlgren assigns the piece to Shang no doubt because of the inscription in the *ya-hsing*. Whatever its date, the Pillsbury *yu* would seem, on stylistic grounds, to antedate slightly our Number 50.

TECHNICAL OBSERVATIONS

The vessel appears to be an archaistic piece and does not seem to have been cast in a piece mold. What seem to be mold-join traces on some of the horizontal edges of the flanges may be simulations. The decor has a certain plastic quality. Not only are the principal patterns on the foot-band identical but also the *lei-wen*. The handle loops are cast with the vessel, and the handle was after-cast into them. Three depressions which may indicate the use of chaplets occur in the inscription area of the vessel bottom, but elsewhere there are no signs of chaplets. Irregular and jagged criss-cross lines are present on the bottom underside, but there are no brackets. The foot is rimmed inside with hard baked earth which may be residues of an original clay mold. The heavy flanges are of solid metal, but the lid protruberances have cores which are revealed by the decorative openings on both sides. The knob is also cored, but there is only one opening from the knob overhang. Elongated depressions inside the lid correspond to the flanges without, a feature that is also to be observed in the lid of *yu* Number 50.

Most of the outside surface is glossy metallic brown, but the inside of the cover and the neck is coated with thin, hard malachite. There is little or no evidence of long burial. Except for minor casting flaws, the condition is excellent.

Both inscriptions which differ slightly in size appear to be cast. The one on the vessel bottom is shallow but perfectly made. Irregularities of

¹⁶⁹ Karlgren, . . . *Pillsbury* . . . , No. 16, Pl. 22 and 23. Working from photographs alone, Karlgren assigned our piece to Shang in his first great study of Chinese bronzes, *Yin and Chou* . . . , Pl. XXVI, A64.

the lines of the inscription in the lid are caused by an uneven and partial filling of bright green malachite; otherwise the two inscriptions are nearly identical.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 71.7%; Sn 10.4; Pb 13.7; Total 95.8.

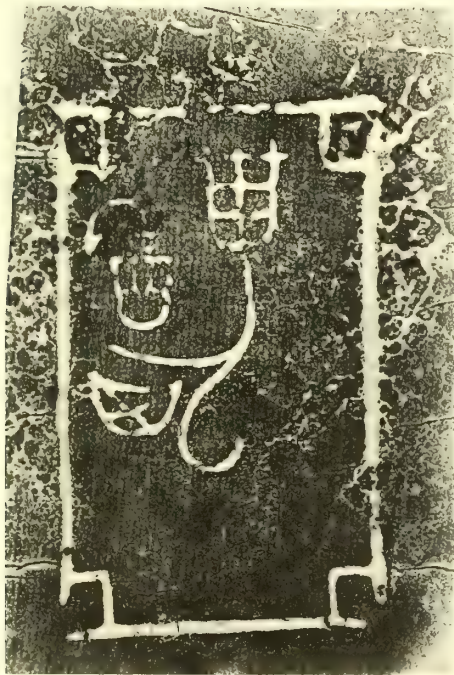
Additional elements estimated by emission spectrometry: Ag 0.1%;

Au <0.01; Fe 0.7; Co 0.01; Ni 0.01; As 0.2; Sb 0.1; Bi 0.2;

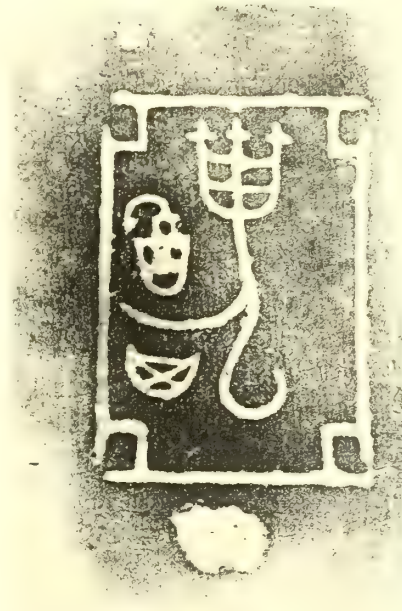
Cr <0.001; Al 0.004; Mg <0.001; Mn <0.001; Si 0.001.

INSCRIPTION

This *Ya-hsing* graph enclosing a libation pourer is discussed in the inscription notes following our *fang-i* Number 37. Rubbings of the inscription which is cast in both the vessel and the lid have not hitherto been published.



COVER



VESSEL

Yu

Recent

Inscription of 12 characters inside both lid and vessel

Height, 31.8 cm. (12½ in.)

Width, 30.5 cm. (12 in.)

Weight, 7.03 kg. (15 lbs., 8 oz.)

Accession number 09.260

The vessel of typical *yu* shape has an arching handle ending in two rams' heads in the round. Both lid and vessel are vertically divided by four heavily segmented flanges, and the principal decorations are *t'ao-t'ieh* masks and split-skin serpents centered on small monster heads. The rough all-over brownish patina has areas of simulated malachite and cuprite encrustation, and the quality of the workmanship is quite poor.

The original attribution was to Shang when this vessel came from Yung Pao Chai in Peking. Mr. Freer placed it a bit later when he wrote, "Very important in design, casting, and inscription, but I believe a Chou product."



NUMBER FIFTY-TWO (09.260)

NUMBER FIFTY-TWO

STYLE AND CHRONOLOGY

This vessel must be based fairly closely on a *yu* of early Chou date, since it could not be rejected as a product of that period on stylistic grounds alone. As a general parallel to the shape, the hooked flanges, and the ram's head terminals on bail handle, we may cite the *yu* in the Hakutsuru Museum, datable by its inscription to the early decades of the Chou dynasty.¹⁷⁰ The very high relief decor, serving more to disrupt than to ornament the surface, and the absence of *lei-wen* are also features found in *yu* of the early Chou.¹⁷¹ The two-bodied (or split-bodied) serpents above and below the lid join are otherwise unknown on *yu* vessels, but are common on those of other types in this period, such as our *fang-t'ing* Number 34 or *fang-i* Number 38. The *t'ao-t'ieh* masks, partially metamorphosed into abstract patterns of broad bands and hooks, appear to occupy a position in an early Chou sequence following those in the *kuei* Number 63 and preceding those on the *fang-i* Number 38, a vessel far more radical in this regard.

TECHNICAL OBSERVATIONS

The faint remnants of what appear to be section joins on the vertical flanges lack the sharpness characteristic of normal direct castings in section-mold assemblies. The flanges are deeply undercut, and the patterns on their sides are carelessly done. The top of one of the flanges is connected to the handle loop with a short web or flash of metal which is obviously accidental but probably reflects the method used in casting. The bottom of the lid grip is pierced by two squarish openings (one not fully perforated) which probably resulted from extensions of the core to permit proper spacing within the mold assembly. There appear to be no chaplets, and there are no criss-cross lines or brackets on the bottom. The swing handle has the usual three divisions and the animal head terminals show traces of joins. In general the decor of the vessel is not clear and sharp but has a smoothed-over appearance. The inscription in

¹⁷⁰ Mizuno, *In shū* . . . , Pl. 103; the inscription, reproduced and discussed on p. 46, fig. 47, belongs to the Ch'en-ch'en series; cf. the discussion of the *huo* No. 41.

¹⁷¹ Mizuno, *op. cit.*, Pl. 88 (M.F.A., Boston), and Watson, *Ancient Chinese bronzes*, Pl. 30a (Victoria and Albert Museum).

both vessel and lid is cast; the strokes are partially filled with malachite.

Much of the surface is dark brown in color with metallic lustre, but there are scattered areas of smooth malachite. There are no earthy residues or other evidence that the vessel was buried.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 79.7%; Sn 14.0; Pb 1.2; Total 94.9.

Additional elements estimated by emission spectrometry: Ag 0.09%;

Fe 0.3; Co 0.003; Ni 0.03; As 0.07; Sb 0.07; Mg < 0.001; Si 0.01.

Sample taken from the rim: Cu 82.2%; Sn 14.1; Pb 1.8; Total 98.1.

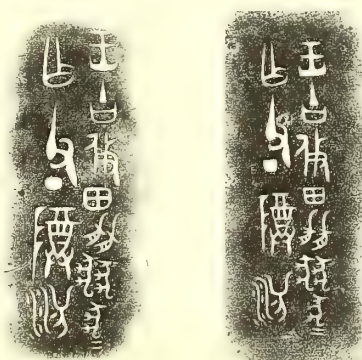
INSCRIPTION

The inscription which is cast in both the vessel and the lid comprises 9 characters typical of Shang and early Western Chou. The calligraphy is beautifully executed; it reads:

(1) The King . . (verb) Yu, hunted (in) X. X

(2) made (for) Fu-ting (this) *tsun*. Clan sign

From several aspects to be considered in detail later, this inscription text is judged to be highly suspect. However, as our vessel is seventh in a series of inscribed vessels containing the same inscription text and individually published at wide intervals over the period of 160 years since the prototype inscription appeared in *Chi-ku-chai* (1.20), there is little need to elaborate here. Our inscription set has not hitherto been published although a set of original rubbings is in the *Kōsai takuhon* Collection in Kyoto University.



COVER

VESSEL

Yu

Early Chou dynasty (late 11th– early 10th century B.C.)

Inscription of six characters in both vessel and cover

Height, 29.2 cm. (11½ in.)

Width, 20.3 cm. (8 in.)

Weight, 3.32 kg. (7 lbs., 5 oz.)

Accession number 09.258

The cylindrical vessel with cover is decorated with casting in low relief, and the surface is a rather even cuprite red speckled unevenly with patches of malachite. The over-all decoration is disposed in broad horizontal bands alternating between bird and animal patterns on *lei-wen* grounds and bands of plain ribbing. On the bail handle are linear dragons on *lei-wen* ground, and the terminal rings are capped with bottle-horned bovine heads.



NUMBER FIFTY-THREE (09.258)

NUMBER FIFTY-THREE

STYLE AND CHRONOLOGY

This *yu* and another that looks just like it are illustrated in the catalogue of the Tuan Fang Collection.¹⁷² The inscriptions have the same text, differently written, and according to the descriptions the second vessel is some three inches smaller overall than the first. Other similar *yu* are in the Oeder Collection and in the Metropolitan Museum of Art.¹⁷³ In general this group seems to fall into the stylistic repertory of early Chou.¹⁷⁴ The combination of zones of vertical ribbing with fairly organically rendered birds as the dominant motif links this vessel with the *yu* Number 50 and other bronzes of early Chou date. The greatly attenuated and formalized dragons, made up of narrow bands and hooks, are very close to those on the *yu* Number 54 that we have assigned to the time of King Ch'eng or King K'ang, that is about 1024–967. Dragons and birds of these types also appear on the bronzes excavated at Hai-tao-ying-tzu in Jehol Province, datable by their inscriptions to the reign of King Ch'eng 1024–1005.¹⁷⁵ Mizuno also places this type of *yu* in early Chou and includes it in that position on his chart showing the development of the *yu* type.¹⁷⁶

TECHNICAL OBSERVATIONS

The vessel appears to be a direct casting in a two-piece, four-division mold assembly. True join traces are just visible at the halves in line with the loops while slight remnants of pre-assembly joins may be observed in the upper and central decor bands in the quarters in line with the free animal heads. The loops for the handle are cast as part of the vessel and the swing handle manifests the structural details which have been noted on other vessels of this type. The rounded bottom is high set being about 3 cm. above the foot rim of the vessel. There are no criss-cross

¹⁷² Tuan Fang, *T'ao chai* . . . , 2:34, 35. No date is given.

¹⁷³ Karlgren, *New Studies* . . . , No. 621, Pl. XLVII: Lippe, "A gift . . . ," p. 103.

¹⁷⁴ There is one dissenting voice. Lippe, *op. cit.*, p. 105, states, without documentation, that the vessel "is now unanimously dated in the Shang dynasty."

¹⁷⁵ Watson, *Archaeology in China*, Pl. 57 (*yu* with dragons), and 62 (*ting* with birds). Higuchi, *Newly Discovered Western Chou Bronzes*, discusses the date of this find.

¹⁷⁶ Mizuno, *In shū* . . . , p. 45, fig. 14.

markings on the bottom or brackets on the inside foot. The inscription in both the vessel and cover are cast. Corrosion products including cuprite, malachite and azurite line the strokes.

In spite of the fairly high tin content of the alloy, there is little or no tin oxide corrosion product on the surface which, however, is largely covered with cuprite with scattered thin encrustations of dark green malachite, and there are also scattered patches of powdery, bright green which test abundantly for the chloride ion. X-ray diffraction analysis shows that this bright green is a mixture of basic copper chlorides which correspond to the minerals atacamite and paratacamite. It is possible that the bronze was originally quite heavily encrusted with unsightly patina resulting from "bronze disease," but this has mostly been removed mechanically. It looks normal in ultraviolet light, and there are no repairs or artificial accretions.

Composition: Sample taken from upper rim of vessel.

Wet chemical analysis: Cu 79.6%; Sn 16.4; Pb 1.9; Total 97.9.

Additional elements estimated by emission spectrometry: Ag 0.07%; Fe 0.3; Co 0.007; Ni 0.02; As 0.2; Sb 0.1; Bi 0.05; Cr 0.002; Mg 0.001; Mn 0.001; Si 0.01.



VESSEL



COVER

NUMBER FIFTY-THREE

INSCRIPTION

The cast-in inscription of six characters is repeated in both the vessel and its lid. It was once in the Tuan Fang Collection and at least two further copies of the inscription have since appeared. There is reason to suspect the inscription as noted in detail in Volume III. Short inscriptions usually present the forger with limited opportunity of error, if he is to make mistakes. The inscription reads:

1. [The Marquis] Chi of the Ya-i (clan) made (for)
2. Mu-Hsin [lit. 'Mother-Eight'] (this) *i*.



Detail of decor band around top of vessel

Yu

Early Chou dynasty (late 11th– early 10th century B.C.)

Inscription of 28 characters inside base and lid

Height, 22.2 cm. ($8\frac{3}{4}$ in.)

Width, 19.7 cm. ($7\frac{3}{4}$ in.)

Weight, 2.21 kg. (4 lbs., 14 oz.)

Accession number 60.20

This vessel differs from the last two *yu* in that the bail handle crosses the long axis of the body. Three narrow bands of dragon forms are seen on the lid, around the neck and around the foot. All have *lei-wen* grounds as does the handle. The latter terminates in bold animal masks and smaller masks appear at the center of each side of the neck decoration. A smooth, dark green patina with some areas of encrustation covers the entire vessel.



NUMBER FIFTY-FOUR (60.20)

NUMBER FIFTY-FOUR

STYLE AND CHRONOLOGY

The evidence for assigning this *yu* to the early part of the Chou dynasty is unusually full and consistent and is based on several convincingly datable vessels that are closely related in form and decor, or both. First come four *yu* published by Ch'en Meng-chia and dated by him on the basis of their inscriptions.

The *Pao yu*¹⁷⁷ has a narrower and more slender profile; the beast heads terminating the handle have bottle horns, suggesting that it is still under Shang influence; and the dragons in the decor bands are similar to ours. The inscription according to Ch'en, suggests the first Chou reign, that of King Wu. Next come the two *Ch'ing yu*¹⁷⁸ which have dragon bands closely resembling ours on lid, vessel, and base. In this case the dating depends on the use in the inscription of the expression *Hsin-i* to refer to the city of Lo-yang, a designation which Ch'en feels was used only in the early decades of the dynasty. Accordingly he places the two *yu* and the rest of the find in the reign of King Ch'eng. Finally, very similar in shape to ours, but decorated only with raised "bowstrings" is the *Ching yu* with its inscription suggesting the early years of the reign of King K'ang.¹⁷⁹

Among the vessels found at Hai-tao-ying-tzu Ts'un in Jehol province was a very similar *yu* with dragons of almost identical design.¹⁸⁰ The find is not precisely datable, but seems to belong in the first two Chou reigns with the exception of a *hsien* and a *kuei* which may be Shang.¹⁸¹ Two more vessels that should be brought forth in evidence are a *yu* and a *p'an* found at Yen-tun Shan in Kiangsu. They have on them bands of dragons somewhat more dissolved and fanciful but still clearly related in style with narrow lines of even width forming angular patterns and often ending in pointed and hooked curls.¹⁸² A *kuei* in this group, decorated

¹⁷⁷ *K'ao-ku hsiieh-pao*, 1955, No. 9, p. 157 and Pl. 1. Rubbings of the decor bands on p. 156.

¹⁷⁸ Ch'en Meng-chia, *Hsi-chou . . .*, Part II. Rubbings of the vessels in *Cheng-ch'iu-kuan chi-chin t'u* 36 and 37.

¹⁷⁹ *K'ao-ku hsiieh-pao*, 1956, No. 3, p. 112 and Pl. 5.

¹⁸⁰ Watson, *Archaeology in China*, Pl. 57 and p. 23.

¹⁸¹ Higuchi, *Newly Discovered Western Chou Bronzes*, pp. 30-37. Thirteen of the vessels are illustrated in WWTKTL 1955, 8, pls. 1-13.

¹⁸² Watson, *op. cit.*, Pl. 63a and 64b.

around the base with dragons of the same general character although not identical in detail, bears an inscription referring to a sacrifice made by King Ch'eng to his father.¹⁸³

TECHNICAL OBSERVATIONS

The vessel is a direct casting from a two-piece, four-division mold. True join traces along the major axis are clearly visible in the decor bands and along the undersides of the handle loops. Pre-assembly joins in the original molds may be observed just above the free animal heads in the neck decor band. The lid is made in much the same way. At the base of the finial and in line with the major axis are two square chaplet openings. The handle was apparently aftercast in such a way that the terminal eyes were engaged by the two loops which are cast as one with the vessel. There are no criss-cross lines on the underside. Chaplets are discernible on the inside bottom within limits of the base rim, one in the center of the inscription. Similarly on the lid one chaplet is visible near the finial.

The main decor on the upper band in relief and the main decor on one side of the panel are identical indicating they were made by dies or stamps.

The characters of the inscription are cast in the manner of most characters on Chou bronzes with some unevenness in depth of the lines, and some of the characters remarkably undercut. The grooves contain usual corrosion products. Surrounding the inscription are vestiges of grooved lines which form a sort of rectangular frame.

Much of the metal surface is hardly more than deeply tarnished. On the inside of the neck it has been mechanically scraped down to remove corrosion crusts, and the operation has exposed a large area of red cuprite. The bottom of the bowl has some areas covered with touch-up paint in which the modern pigments, emerald (Paris) green and Prussian blue, were identified; this may have been applied to cover cuprite that was exposed when thick corrosion crusts were scraped off. Otherwise, the piece is in good condition.

¹⁸³ Watson, *op. cit.*, Pl. 63b and p. 24.

NUMBER FIFTY-FOUR

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 83.3%; Sn 15.1; Pb 0.1; Total 98.5.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Au <0.01; Fe 0.01; Co 0.03; Ni 0.02; As 0.2; Sb 0.02; Bi 0.03;

Cr <0.001; Al 0.001; Mg <0.001; Mn <0.001; Si 0.005.

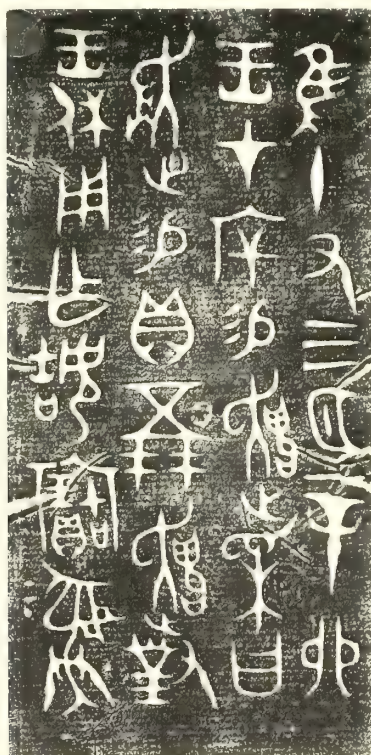
The small amount of lead in this bronze is noted.

INSCRIPTION

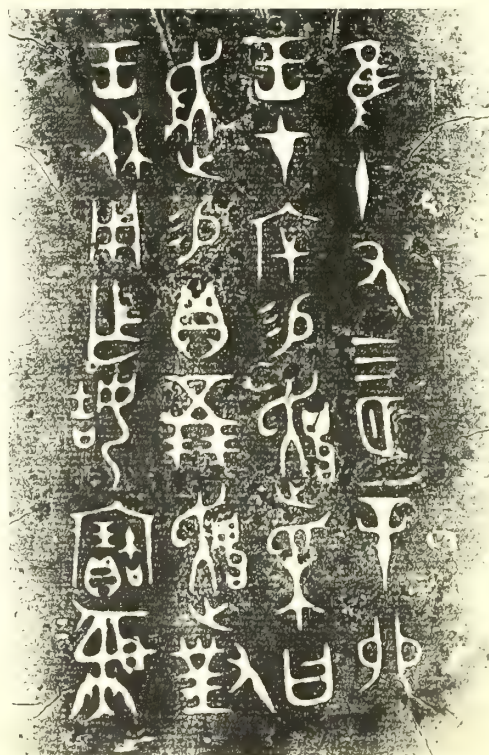
The inscription, as in 11.40 (cf. No. 73), reads:

1. In the thirteenth month, (on the day) *hsin-mao* (28),
2. The King was in Kan. (He) awarded Hsien the territory called
3. —; awarded him cowries – five strings. Hsien responded to the King's
4. munificence, therefore made (for the lady) Chi (this) valuable *i*.

Both inscribed vessels have been known since late last century and originally were in the collection of Ch'en Chieh-ch'i.



COVER



VESSEL



Detail of handle

A lid of a *yu*

Early Chou dynasty (late 11th – early 10th century B.C.)

Inscription of four characters inside

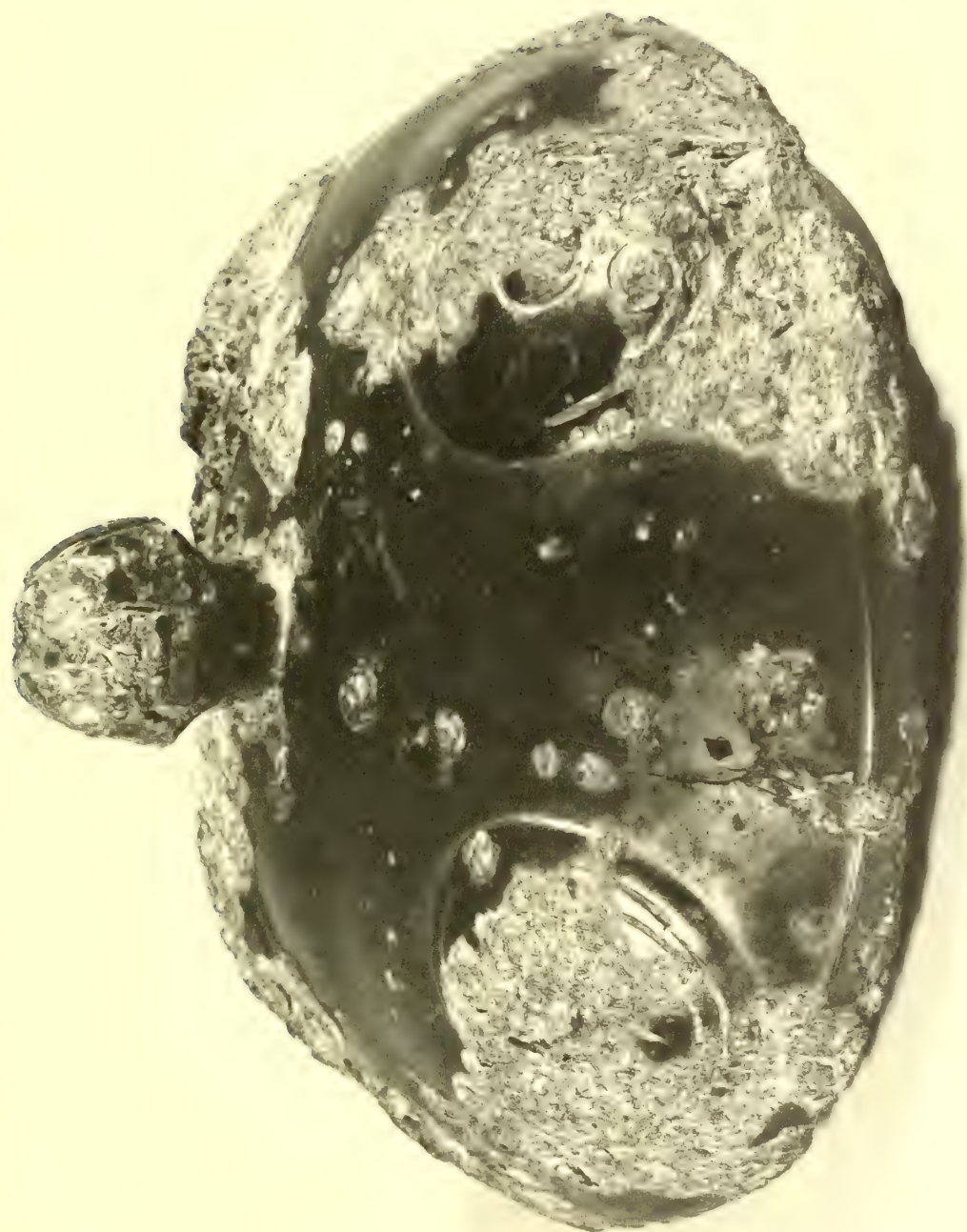
Height, 10.8 cm. ($4\frac{1}{4}$ in.)

Width, 17.1 cm. ($6\frac{3}{4}$ in.)

Weight, 1.36 kg. (3 lbs.)

Accession number 16.361

This fragmentary lid is decorated with four round bosses on which are whirling spiral designs in intaglio. The finial, a cluster of vertical cicadas, is like those on the two *yu* that follow; and the smooth glossy brown patina is more than half covered with extremely thick malachite encrustation.



NUMBER FIFTY-FIVE (16.361)

NUMBER FIFTY-FIVE

STYLE AND CHRONOLOGY

While it is hard to see what else this can be, the lids of most known *yu* of this stylistic group seem to fit *over* the mouths of the vessels. On this one, the remains of a ring set back from the under edge means that it must have fitted *inside* the mouth. The possibility remains that it may have belonged to some other type of vessel such as a *hu*, a *huo*, a *p'ou*, etc.; but so far no satisfactory parallel has turned up in the lid of any existing bronze.

The knob is a type commonly found on late Shang and early Chou vessel lids, and the relief "whorl-circles" that appear as bosses on the surface are familiar in the Shang repertory and survive into the early Chou on certain vessel types, notably the *kuei*.¹⁸⁴

TECHNICAL OBSERVATIONS

The cover is cast in one piece with no signs of mold marks. Inside are four depressions under the exterior bosses; presumably these were to minimize shrinkage and cracking when the metal cooled. The knob is cast hollow over a clay core. One chaplet is clearly visible in an uncorroded area, and others may be hidden under the crusts. The inscription of four characters is cast underneath near the rim.

A notable feature is the unevenness of the corrosion attack. About half of the outer surface is covered with thick, dull green corrosion crusts while the other half of the surface is as smooth as when first fabricated and is now glossy brown and metallic. The reason for this juxtaposition of unaltered areas with areas of heavy corrosion is still not clearly understood. The rim and lip all around are deeply mineralized. The corrosion crusts are a mixture of chloride and carbonate salts of copper (atacamite and malachite overlying cuprite). Some earthy residues are entangled with them. A portion of the lip about half-way around is broken off.

Composition: Sample taken from an uncorroded part of rim.

Wet chemical analysis: Cu 83.3%; Sn 14.5; Total 97.8.

¹⁸⁴ E.g. Karlgren, *New Studies . . .*, Pl. XL, Nos. 381, 393.

NUMBER FIFTY-FIVE

Additional elements estimated by emission spectrometry: Pb 0.3%;
Ag 0.07; Fe 0.1; Co 0.001; Ni 0.02; Al < 0.001; Mg < 0.001; Si 0.02.

INSCRIPTION

This inscription comprises a pictograph of an animal, an unidentified graph, and the dedication to Fu-hsin.



Yu

Early Chou dynasty? (late 11th – early 10th century B.C.)

Inscription of three characters inside bottom

Height, 32.4 cm. ($12\frac{3}{4}$ in.)

Width, 25.1 cm. ($9\frac{7}{8}$ in.)

Weight, 5.70 kg. (12 lbs., 9 oz.)

Accession number 11.36

The handle of this *yu*, arching the long axis of the vessel, simulates a twisted rope looped through vertical rings at the shoulder. Bands of diamond-shaped lozenges bordered by rows of circles are faintly cast on neck and lid and partly obscured by corrosion. The finial is a bud form made up of stylized vertical cicadas; and a single monster mask in relief appears in the center of each side of the shoulder. The surface is uniformly covered with a dark brownish-green patina showing some areas of encrustation.

The authenticity of this *yu* and the next (No. 57) remains in doubt. As will be seen, the technical observations include some questions about how the molds were made but otherwise show nothing to suggest that the bronzes are not ancient. The very great difference in weight and in the composition of the two alloys seems to preclude any possibility that the two were made in the same shop at the same time as copies of an early original in spite of the great similarity of form and decoration. Barnard considers them late on the basis of his examination of the inscriptions. Whether this point alone is enough to condemn them we do not know. They have none of the characteristics that typify the bronzes made in Sung times or later in imitation of ancient ceremonial vessels. For these reasons the date given above is followed by a question mark. Mr. Freer considered both *yu* “splendid examples of genuine Shang bronze.”



NUMBER FIFTY-SIX (11.36)

NUMBER FIFTY-SIX

STYLE AND CHRONOLOGY (11.36 and 11.37)

Under this heading there is no need to discuss these vessels separately.

Three *yu* of the same type were reportedly found at An-yang.¹⁸⁵ and another of the same group is in the Ashmolean Museum, Oxford.¹⁸⁶ All have plain bodies with bands of simple decor around the shoulder, and, in two cases on the lid. All have the raised “bowstrings” around the foot, and the knob resembles a cluster of cicadas. Evidently the type originated in the Shang dynasty as a simplified version of the richly ornamented *yu* represented by Number 49. It is striking, however, that on the earlier *yu* the handle arches the short axis of the vessel rather than the long axis as here. According to Watson,¹⁸⁷ this shift in the orientation of the handle takes place near the end of the eleventh century, say in the reign of King K'ang. Our two pieces thus represent a stage between the typical Shang *yu* and the fully developed early Chou examples which are broader in proportion to their height and have lower feet. They may be placed right in the middle of the Shang–Chou transition representing a stage midway between the typical Shang *yu* and such early Chou examples as Number 54 and Number 58, which are broader in proportion to their height, with shorter feet. They may be dated at the very end of the Shang dynasty or the beginning of Chou.

TECHNICAL OBSERVATIONS

Mold-join traces are discernible under the handle loops and along the foot in vertical line of the major axis, but it is not entirely clear how the mold was made. The relief decor has a worn and smooth look in some areas, and there are indications that the *lei-wen* were accentuated with a black filling, now mostly worn away (*fig. 39*). The lid lacks any vestiges of join traces, and the knob is clay cored. There are two rectangular holes on the long axis at juncture of the vessel and foot; and the criss-

¹⁸⁵ Ch'en Meng-chia, *Yin-tai-t'ung-ch'i*, 1954, Pl. 20, fig. 27, “very likely excavated from the small tomb No. 1:2026 in the autumn of 1935” (p. 27); Karlgren, . . . *Hellström* . . . , Pl. 15, No. 2 and p. 8; and Huang, *Yeh-chung* . . . , I/A/20. The last, with a band of simple lozenges bordered with rows of raised circles, is especially close to 11.37.

¹⁸⁶ Watson, *Ancient Chinese bronzes*, Pl. 23a.

¹⁸⁷ *Op. cit.*, p. 33.



FIGURE 39

cross pattern in relief on the bottom with unusually thick and regular lines seems to imitate the more informal criss-cross patterns on Shang bronzes. The inscription of three characters is cast in the bottom of the vessel only. The strokes are thinly coated with black and hold earthy residues. The lid fits tightly and in only one position. No chaplets were seen in either vessel or cover.

At the termini of the handle there appear to be join marks and on one is the stump of a sprue. These must result from the complicated structure of the mold at the point where the terminal eyes of the bail interlock with the handle loops. The remainder of the handle lacks the usual join marks which suggest the use of piece-molds.

The surface is thinly covered with dull-toned patches of malachite and azurite. Most of the interior is dull metallic and tarnished. If the vessel was once buried, it seems that it has been out of the earth a long time.

Composition: Sample taken from edge of foot.

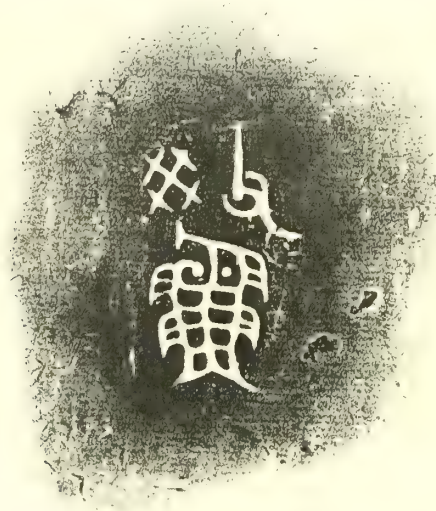
Wet chemical analysis: Cu 66.3%; Sn 9.0; Pb 22.1; Total 97.4.

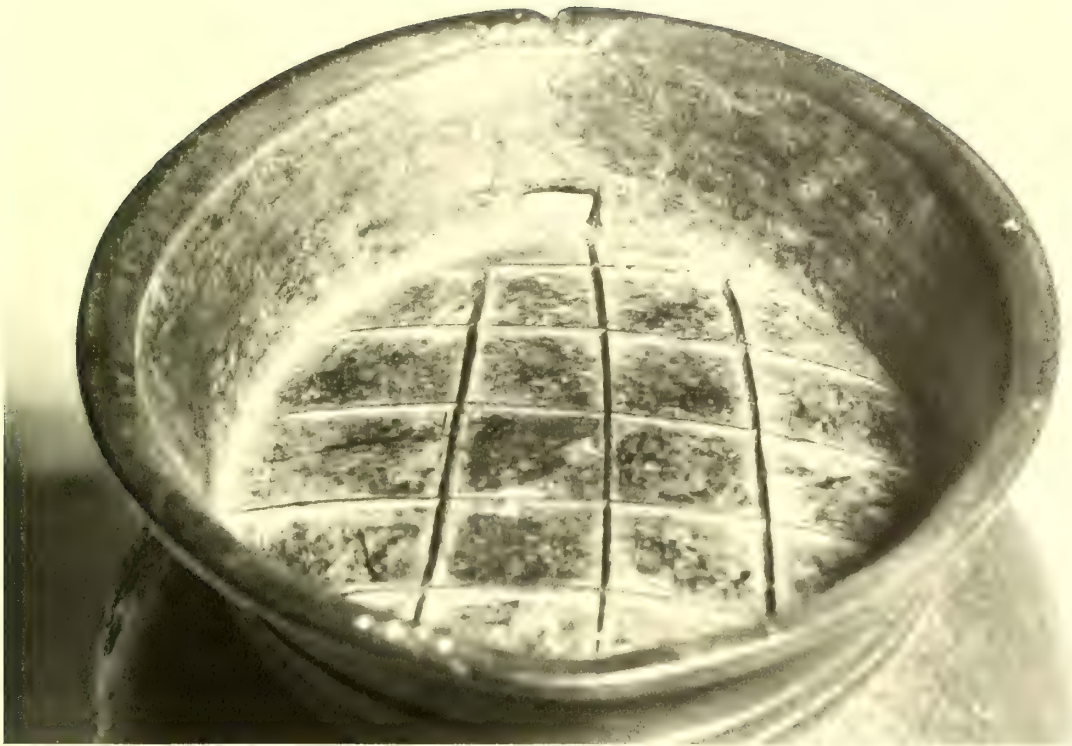
NUMBER FIFTY-SIX

Additional elements estimated by emission spectrometry: Ag 0.2%;
Au <0.01; Fe 0.07; Co 0.003; Ni 0.03; As 0.2; Sb 0.1; Bi 0.05;
Mg <0.001.

INSCRIPTION

The inscription appears only in the vessel. It comprises the two characters Fu-kuei placed above the clan sign, Fish. There are perhaps some grounds for suspicion in this reversal of the characters; but in short inscriptions of such limited context, it is difficult to advance acceptable conclusions in one direction or the other.





Detail of bottom

Yu

Early Chou dynasty? (late 11th – early 10th century B.C.)

Inscription of five characters inside both vessel and cover

Height, 32.8 cm. ($12\frac{7}{8}$ in.)

Width, 23.8 cm. ($9\frac{3}{8}$ in.)

Weight, 4.37 kg. (9 lbs., 10 oz.)

Accession number 11.37

This vessel matches the last in both form and decoration, but the brownish-green patina of the surface is heavily covered with encrustation and earthy accretions which largely obscure the decoration.



NUMBER FIFTY-SEVEN (11.37)

NUMBER FIFTY-SEVEN

STYLE AND CHRONOLOGY

See Number 56 (11.36).

TECHNICAL OBSERVATIONS

Like the preceding this vessel bears traces of mold-joins at intervals along the major axes, especially along the foot; and also on the handle loops. The construction of the handle is the same except that the twisted strands do not extend around the loop. The decor band is smoothed down and completely obliterated in places. No chaplets are visible, and underneath there are no criss-cross lines, no brackets, and no holes in the walls of the foot. The knob is cored with clay which is exposed by three small holes under the overhang. As a comparison of the analyses will show, the alloy compositions of the two vessels are quite different. The strokes of the inscription in vessel and cover are wide and shallow but appear to be cast.

The fossae of the *lei-wen* are filled with some black substance which can be seen only when the surface is wet with water or solvent. The darker patches on the cover are residues of a fabric having a rather coarse weave. The surface is thinly covered with corrosion crusts, mostly dull green malachite, and with calcareous earthy deposits and dirt. The vessel may have been buried. The inside surfaces of both vessel and cover, however, are brassy and metallic. There is no evidence of paint or modern repairs.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 74.5%; Sn 12.4; Pb 10.4; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Au < 0.01; Fe 0.1; Co 0.007; Ni 0.02; As 0.1; Sb 0.07; Bi 0.09;

Mg < 0.001; Si 0.001.

INSCRIPTION

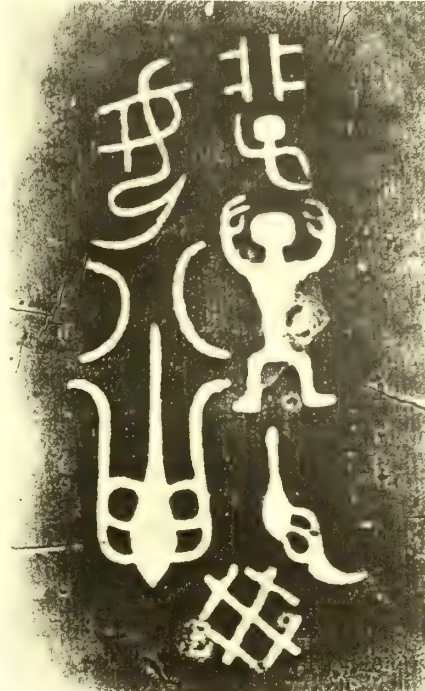
As may be noted, there are inconsistencies between vessel-text and lid-text in respect to the placement of the individual elements. These comprise the commonly found clan sign usually arbitrarily transcribed as

NUMBER FIFTY-SEVEN

che-tzu-sun “bequeathed to (my) descendants,” “woman,” the place-name, and the posthumous appellation Fu-kuei.



COVER



VESSEL

Yu

Early Chou dynasty (late 11th – early 10th century B.C.)

Inscription of three characters inside cover and vessel

Height, 23.1 cm. (9 $\frac{1}{8}$ in.)

Width, 22.9 cm. (9 in.)

Weight, 2.66 kg. (5 lbs., 14 oz.)

Accession number 47.12

Both lid and cover are decorated with confronted birds with extremely long and elaborate tail feathers and crest feathers, the latter curving up over the head and coming down in front. All designs are on a ground of *lei-wen*. The bail handle, terminating in monster masks, curves in a flat arc over the long axis of the vessel. The lid has stubby lugs at either end and a circular finial which can serve as a foot when inverted. A smooth, even, and somewhat mottled yellowish-brown patina covers the entire surface.



NUMBER FIFTY-EIGHT (47.12)

STYLE AND CHRONOLOGY

The sudden rise of the bird motif to a position of dominance on several families of bronze vessels in the early Chou period, whatever its significance in terms of dynastic change or religious reorientation,¹⁸⁸ was an important aspect of the revolution in both style and iconography that brought an end to the slower, more orderly progression that had taken place through the Shang period. The prominence of the bird on vessels of the early decades of Chou has already been noted (see the *tsun* No. 18, and the *yu* No. 40).

In determining the approximate date of our *yu* however, we must begin with the shape. A number of roughly datable early Chou examples were cited in connection with Number 54, and to these two more should be added. Especially interesting as a direct predecessor of ours is the T'uan *yu*, the inscription on which, linked with the Nieh-ling series, indicates that it was made in the time of King Ch'eng (1024–1005).¹⁸⁹ Another is the Ching *yu*, dated by Kuo Mo-jo to the reign of King Mu (947–928).¹⁹⁰ As already noted, the *yu* became squatter as the Chou dynasty progressed; and this one, within such a sequence, must closely follow the slimmer T'uan *yu*, but precede the still broader and squatter Ching *yu*.

Very similar in shape is the *yu* in the Hakutsuru Museum, which belongs to the Jung-tzu set, already cited in connection with the *fang-i* Number 38. The inscriptions on the vessels of this series indicate a date in the reign of King K'ang (1004–967), although, as we have noted, the stylistic affinities with vessels of the preceding reign are close, especially in the *fang-i* and *fang-tsun* of the set.¹⁹¹ The birds on the Hakutsuru vessel are smaller than ours and simpler in design, being compressed into

¹⁸⁸ Ho, *Shang and Chou . . .*, p. 178, suggests that the tribal emblems of the conquered people "once feared but now subjected and pacified," were given prominent places on the arts of the ruling dynasty. Thus the "Shang 'phoenix' . . . played the same role during the dynastic transition in the arts of its new master, the Chou aristocrats."

¹⁸⁹ Jung, *Shang chow . . .* No. 668, and p. 422; the inscription discussed by Loehr, *Bronzentexte . . .*, I, p. 71 ff.

¹⁹⁰ Kuo, *Liang chow . . .*, No. 169.

¹⁹¹ Mizuno, *In-shō . . .*, Pl. 12 (nos. 1 and 4); the *yu* also in *In shū . . .*, Pl. 100–101. But affinities of the *yu* are later.

NUMBER FIFTY-EIGHT

triangular spaces on the lower part of the vessel body. The shape of their heads and beaks, however, the tapering necks, the more organic, even naturalistic outlines of their bodies set them clearly apart from the far more abstract, schematized birds on, for example, the *kuei* Number 70 and bring them closer to these.¹⁹² Another point of similarity is that on both the Hakutsuru *yu* and ours, the birds appear in a properly confronting, quasi-heraldic arrangement, while in the later versions of the motif, to be noted below, they turn their heads to face away from each other.

Two *yu* with the more highly formalized birds, of the kind seen on the *kuei* Number 70, can be considered close lineal descendants of this type. One is in the Sumitomo Collection, Kyoto;¹⁹³ the other is the Keng-ying *yu* in the Fogg Art Museum.¹⁹⁴ Kuo Mo-jo dates the latter vessel to the time of King K'ang, and Ch'en Meng-chia (whose dating depends on stylistic criteria, especially the formation of the birds, rather than on epigraphy) to the same reign or the following, that of Chao (966–948). Both preserve the shape of ours without significant alteration; on both, however, a band of decor has been added just below the rim, compressing and crowding the pairs of birds on the main body area so that they take on more of the character of geometric surface patterns, less of representational images. The added band of decor, in each case, contains the C-shaped bird forms, their tails detached and countering the curve of their bodies, that will later, in a further stage of degeneration, produce the abstract C-patterns found commonly in the same position on Middle Chou bronzes. In these respects, the Sumitomo and the Fogg *yu* stand between ours and the Middle Chou style, when the *yu* form disappears altogether.

On another *yu* in the Sumitomo Collection,¹⁹⁵ some of the distinctive features of ours reappear in exaggerated form, suggesting that this, too, derives from the same type, but in a different direction from the two just

¹⁹² Another example of a bird rendered in this style is on a *chiieh* in the collection of Lord Cunliffe; see Watson, *Ancient Chinese bronzes*, Pl. 10A.

¹⁹³ Sumitomo, *Sen-oku . . .*, 66.

¹⁹⁴ Fogg Art Museum 1943.52.107; see Kuo, *Liang chou . . .*, no. 168, and Ch'en, *Hsi-chou . . .*, Part I, Pl. IX and X.

¹⁹⁵ Sumitomo, *op. cit.*, 67.

considered. It is even broader and heavier in feeling; the rams' heads at the ends of the handle are enlarged; and the long plumes that make up the drooping crests of the birds have been transformed into a decorative pattern of narrow bands broken at intervals by large "eyes," which take the same shape as the "scales" often seen on the neck of such birds. The birds turn their heads to face backward, an arrangement characteristic, as we have remarked, of the later stages in the development of the motif. As on our *yu*, the *lei-wen* fill the spaces around the design in a rather mechanical manner, a more perfunctory handling of the spiral filling that leads into cruder renderings, and ultimately to its total disappearance, a phenomenon that appears, however, already by the beginning of Chou on certain vessels.

In view of all the foregoing, we consider this piece to be approximately contemporary with the Hakutsuru *yu* and the Jung-tzu series, and to date probably from the early years of the reign of K'ang; i.e., close to 1000.

TECHNICAL OBSERVATIONS

Both vessel and lid are cast directly in two-piece, four-division mold assemblies. The true mold joins are aligned along the major axes, and the handle loops which are cast with the vessel are located in the same line. The lid projections are indented inside. On the underside there are no brackets or criss-cross lines. Several chaplets are discernible symmetrically located around under the bulge of the vessel body, and four are visible inside the bottom within limits of the foot. A rough area under the eyes of the handle indicate where the handle was cast through the loop. The inscription of three characters is probably cast inside the bottom of the vessel and again in the lid.

The main decor on the two sides is identical, indicating the use of a die or stamp. The *lei-wen*, however, differ in details; hence they were probably incised in the mold sections. The decor on one half of the handle matches that on the other half.

The patina is smooth and uniform with yellowish-green tone. There are only small patches of green and red corrosion crusts, chiefly on the

NUMBER FIFTY-EIGHT

handle, and earthy residues partially fill fossae of the design. Small patches of paint on the handle seem to conceal no breaks or repairs. The lines of the characters inscribed in the cover are partly filled with a brownish film-forming material which draws away from the edges and seems to be organic in composition.

Composition: Sample taken from rim of vessel.

Wet chemical analysis: Cu 74.7%; Sn 12.6; Pb 5.4; Fe 2.5; Total 95.2

Sample taken from foot of vessel: Cu 74.8%; Sn 13.1; Pb 3.7; Total 91.6.

Sample taken from under edge of cover: Cu 75.9%; Sn 13.8; Pb 4.5; Fe 2.1; Total 96.3.

Sample taken from handle: Cu 77.4%; Sn 14.1; Pb 6.1; Total 97.6.

Additional elements estimated by emission spectrometry: Ag 0.09%; Co 0.01; Ni 0.03; As > 1; Sb 0.01; Bi 0.03; Cr 0.002; Mg < 0.001; Mn < 0.001; Si 0.01. (Samples from rim; sample from foot and cover analyze about the same.)

The low totals for the four elements determined in wet analysis and the slight variations in proportions of the elements can be attributed to the difficulty in getting a fair sample for analysis because of corrosion penetration deep into the metal. The differences are not large enough to indicate that different alloy melts were used for the separate members of the vessel. This bronze is also unique because it has the highest iron content of any bronze in the series, and this may account for the warm tone of the patina.



VESSEL



COVER

INSCRIPTION

An inscription of three characters is inscribed in both the vessel and the lid. It reads simply: “Made (this) exalted *i*.” The vessel-maker’s name is not incorporated. Reproductions of the inscription have been published in *Chou chin-wen* (5.111) and *Hsiao-chiao* (4.25b). Although the character *tsung* “ancestral,” “exalted,” etc. is employed in a number of longer inscriptions in other contexts, it is rarely found preceding the vessel name.

Yu

Recent

No inscription

Height, 9.2 cm. ($3\frac{5}{8}$ in.)

Width, 7.0 cm. ($2\frac{3}{4}$ in.)

Weight, 0.31 kg. (11 oz.)

Accession number 11.82

This miniature *yu* with decoration inlaid in silver and gold in Ch'ing dynasty archaistic style has a very realistic twisted rope handle arching over the long axis. It is typical of the things made for decoration and amusement in the 18th century. The smooth, dark-green patina has simulated areas of malachite encrustation. The original attribution of this piece was Sung, and Mr. Freer's only comment was, "interesting."



NUMBER FIFTY-NINE (11.82)

NUMBER FIFTY-NINE

STYLE AND CHRONOLOGY

This miniature vessel is based on the smooth-surfaced *yu* type current in the late Shang and early Chou periods; for references to examples, see the discussion on Numbers 56 and 57. The inlaid designs, however, are in a fanciful and florid style dependent more on Late Chou geometric decor than on the Shang-Chou repertory. More specifically, they appear to be based on simplified and debased renderings of such decor into woodcut, such as are to be seen in the *Po-ku t'u-lu* and *K'ao-ku-t'u*. The barely recognizable monoculous dragons are quite out of keeping with the geometric patterns, but likewise derived from woodcut illustrations.

TECHNICAL OBSERVATIONS

Vessel, handle, and cover are each cast in a single piece; and the absence of mold marks suggests that they were not cast in a piece mold. The side loops to accommodate the swing handle are cast as one with the body at the upper join, but both lower joins are made with soft solder. This indicates the loop was cast as a stem and bent around after engaging the precast bail. The inlaid pieces of silver and of gold are set into channels that apparently were cut into the surface after casting. The underside is plain. The patches of green scattered over the surface are a sort of paint made with powdered malachite. There is no indication that the object was ever buried.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 70.4%; Sn 4.9; Pb 19.1; Zn 3.5; Total 97.9.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.2; Co 0.01; Ni 0.1; As 0.2; Sb 0.2; Bi 0.03; Mg <0.001;

Mn <0.001; Si 0.001.

The presence of little tin, much lead, and an appreciable amount of zinc is noted.



Detail of inlay on side (*ca.* × 4)

Yü

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of six characters inside the bottom

Height, 41.6 cm. ($16\frac{3}{8}$ in.)

Width, 56.5 cm. ($22\frac{1}{4}$ in.)

Weight, 24.97 kg. (55 lbs.)

Accession number 37.1

The massive deep basin is equipped with two powerful handles protruding at the sides and curving up to just below the lip. A band of eight *t'ao-t'ieh* masks centered on plain flanges lies above the handles, and below this is a row of hanging blades, each consisting of two vertical dragons. Elongated dragons in pairs surround the foot, each pair facing one plain flange. All the relief decoration is on grounds of *lei-wen*. Light green patina covers the whole surface and shows moderate areas of encrustation. Inside some parts of the lip are patterns of matting clearly revealed in the encrustation.



NUMBER SIXTY (37.1)

NUMBER SIXTY

STYLE AND CHRONOLOGY

Large *yü* of this type are relatively uncommon; and perhaps the best known as well as the nearest to ours in size is that in the Toledo Museum of Art (H.29.2 cm. 11½ in.).¹⁹⁶ Another was among the bronzes excavated at Hai-tao-ying-tzu and this was still smaller (H.24 cm. 9 ⁷/₁₆ in.).¹⁹⁷ Ch'ên assigns all three *yü* and another in the Peking Museum to early Chou.¹⁹⁸ The Peking and Toledo pieces, like ours, have large hanging blades as their main body decor. These probably derive from the abstractions of cicada forms that appear commonly in the Shang repertory of bronze ornament, as seen, e.g., on the *tsun* Number 16 or the *chia* Number 20 where, however, they are found as *rising* blades. By the early Chou stage of the three *yü*, they have been reinterpreted as confronting pairs of dragons joined at the tails. This transformation may be observed on a Shang period predecessor of the three *yü*, a *yü* found in one of the tombs at Hsi-pei-kang, An-yang.¹⁹⁹ The inscription on this piece, like that on the *yü* from Hai-tao-ying-tzu, includes the word *yü* as the designation of the vessel, attesting to the correctness of the name. It was evidently a container for rice.²⁰⁰

In its tendency to reduce the animal forms to rectilinear patterns made up of bands of even width with hooks projecting at intervals from the sides, the decor belongs to a mode current in the early decades of Chou. An attribution to that period is further supported by the similarity of the *t'ao-t'ieh* in the upper band to those on the *fang-i* Number 38.

TECHNICAL OBSERVATIONS

The entire vessel is cast in one piece by the direct method. The mold marks, which are faint, indicate a four-piece, eight-division mold with true joins separating the *t'ao-t'ieh* on the foot. A mold join is plainly

¹⁹⁶ Watson, *Ancient Chinese bronzes*, 25b.

¹⁹⁷ *Wen-wu*, 1955, No. 8, p. 21; Watson, *Archaeology in China*, Pl. 61; and Higuchi, *Newly discovered Western Chou bronzes*, fig. 1, and pp. 32–35, for a discussion of the date.

¹⁹⁸ Ch'ên Mêng-chia, *Hsi-chou . . .*, Part II, pp. 99–101. The Freer vessel is reproduced in Pl. 2; the Po-*yü* in Pl. 3; the K'ang-kung *yü* in Pl. 4–5.

¹⁹⁹ Ch'ên Mêng-chia, *Yin-tai-t'ung-ch'i*, No. 7, 1954, Pl. 5, fig. 6, and p. 24.

²⁰⁰ Ch'ên Mêng-chia, *Hsi-chou . . .*, p. 100–101.

visible along one side of one of the upper flanges. There are chaplets in the vessel side just above the join of each handle and also traces of them at the same level in some of the narrow spaces between the hanging blade motifs. X-rays revealed four large chaplets symmetrically placed in the bottom of the vessel. The two handles, which are solid, are cast integrally with the vessel, and there is no evidence of a seam or join where the details of design on the vessel merge with the handle shoulder (*fig. 40*). On the inside opposite each of the two handle contacts are low



FIGURE 40

NUMBER SIXTY

rounded bosses each about 3.5 cm. in diameter. These seem simply to give added thickness and strength to the sidewalls where the handles are joined, and there is no indication that they are rivet heads or welds. The bottom bears a pattern of criss-cross marks very similar to that on the underside of *ting* Number 78. They form a cross in the middle and chevrons in the four quadrants. Six brackets are located in the angle between foot and bottom. Close examination with long focus stereomicroscope and bright illumination reveals nothing to suggest the characters were incised in cold metal, but the possibility remains that they might have been etched rather than cast.

The exterior surface is mostly covered with smooth, gray-green, tin-oxide patina interspersed here and there with patches of crusty malachite. Corrosion is thicker on the inside. Quite a bit of earthy material still clings to the bronze. One especially interesting feature is the imprint of a coarse fabric or reed matting with twill weave in the patina along a portion of the inside rim of the vessel. This circumstance probably reflects the burial customs at the time when this vessel was used.

Examination in ultraviolet light, confirmed by microscopic studies, shows scattered areas of paint and artificial patina on the exterior. Pigments present are the commonly used Paris green and Prussian blue. Otherwise the vessel is in excellent condition.

Composition: Sample taken from edge of base.

Wet chemical analysis: Cu 84.1%; Sn 13.3; Pb 1.2; Total 98.6.

Additional elements estimated by emission spectrometry: Ag 0.1%; Au < 0.01; Fe 0.5; Co 0.004; Ni 0.03; As 0.2; Sb 0.3; Bi 0.2; Cr 0.002; Mg < 0.001; Mn < 0.001; Si 0.01.

INSCRIPTION

The location of this incised inscription is a most unusual one for vessels of this kind. Two of the characters are executed in a highly questionable manner, namely the first graph *ts'ung* used here as a person's name and the fifth, *i* a generic term for ritual vessels. The text reads: "Ts'ung made (this) valuable and honoured *i*. Clan sign."



Kuei

Shang dynasty (middle-late An-yang, 12th-11th century B.C.)

Inscription of two characters

Height, 21.0 cm. (8 $\frac{1}{4}$ in.)

Width, 14.0 cm. (5 $\frac{1}{2}$ in.)

Weight, 2.41 kg. (5 lbs., 5 oz.)

Accession number 41.8

Thin segmented flanges divide the surface of the vessel into six vertical sections, and *k'uei* dragons center on every second flange in the main zone to form *t'ao-t'ieh*. Single dragons are similarly confronted below and pairs of dragons above. In the zone next to the top, the alternate centering flanges are interrupted by animal heads in the round; and the uppermost zone consists of rising blades framing inverted cicadas. Finely cast *lei-wen* cover most of the vessel, and the patina is uniformly gray-green of very smooth texture.



NUMBER SIXTY-ONE (41.8)

NUMBER SIXTY-ONE

STYLE AND CHRONOLOGY

Shang dynasty *kuei* usually lack handles and fall into two broad categories of shape: (a) those with nearly straight sides like Number 62, and (b) those with a pronounced S-curve to their profiles as in this example. So far there appear to be no grounds for making a chronological distinction between the two types; the majority of both seem to be late Shang.

A *kuei* shaped much like ours was recently excavated near An-yang; but the *t'ao-t'ieh* is of the more coherent and sparsely ornamented variety, the rim more flaring, and the foot narrower.²⁰¹ Closer to ours is the one in the Museum van Aziatische Kunst in Amsterdam.²⁰² One variant (perhaps an earlier type?) that is narrower in relation to its height and tends to be more cylindrical in form was published by Karlgren;²⁰³ and Mizuno has published an example like ours in every respect except that it has handles.²⁰⁴

In his discussion of our *kuei* Mizuno places it in the late An-yang period, a dating consistent with the character of the decor which places it in a group often distinguished by an extraordinary precision of workmanship; and in the same group, flanges, when present, may extend all the way up to the rim and sometimes beyond. (Cf. the *ku* Nos. 8 and 10 and the *kuang* No. 42 for discussions of these various features.)

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in a three-piece, six-division mold, and the mold joins are in vertical line with the six flanges. The decor is crisply cast and the line edges are sharp. On the smooth band under the body bulge chaplets are arranged in pairs on either side of the true-join lines. Some of the individual chaplets show distinctly on both the inner and outer vessel surfaces. There are three symmetrically disposed chaplets, one indistinct, on the bottom. The underside of the bottom is plain. The inscription of two characters is cast inside the bottom with unusual sharpness and clarity.

²⁰¹ *Kaogu*, 1964, no. 11, p. 591 and Pl. XII, No. 6.

²⁰² Watson, *Ancient Chinese bronzes*, Pl. 4a.

²⁰³ Karlgren, *New Studies . . .*, Pl. XIII, No. 431.

²⁰⁴ Mizuno, *In shū . . .*, Pl. 27.

NUMBER SIXTY-ONE

The surface is uniformly covered with smooth, pale gray-green, tin-oxide patina; but the underside of the bottom is encrusted with malachite. A fairly definite edge to the crust just inside the foot rim indicates that originally the entire bronze was covered with mineral crusts which have mostly been removed mechanically. Only traces of earthy residue mixed with cuprite are lodged in the fossae; there is no evidence of paint or recent repair.

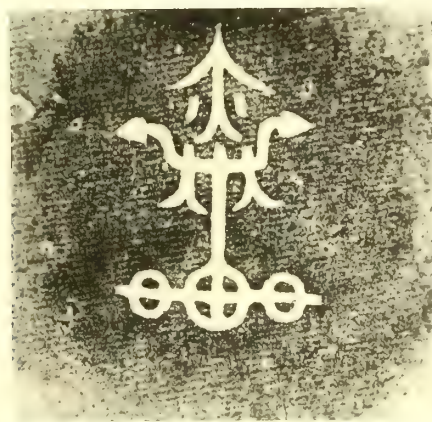
Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 74.9%; Sn 14.3; Pb 10.0; Total 99.2.

Additional elements estimated by emission spectrometry: Ag 0.07%;
Fe 0.03; Co 0.004; Ni 0.008; Sb 0.02; Bi 0.03; Cr 0.001; Mg 0.003;
Mn < 0.001; Si 0.05.

INSCRIPTION

The inscription which comprises the character *i* “arm-pit” and *ch'e* “chariot” has previously been reproduced only in the old Freer catalogue (p.29). The significance of this combination cannot be assessed.



Kuei

Shang dynasty (middle-late An-yang, 12th-11th century B.C.)

No inscription

Height, 18.1 cm. (7 $\frac{1}{8}$ in.)

Width, 25.4 cm. (10 in.)

Weight, 3.43 kg. (7 lbs., 9 oz.)

Accession number 94.17

This deep *kuei* without handles is a less usual shape though not unknown. The surface is divided vertically by six small segmented flanges; and each two zones combine to form a large bold *t'ao-t'ieh* mask in the main band. Above are paired dragons facing the monster mask atop the short flange that splits the *t'ao-t'ieh*. Single *k'uei* dragons face one another in three pairs around the foot. The design is cast in low relief of indifferent quality; and the surface is covered with a patina of coppery tone with some areas of malachite, the whole thing rubbed smooth by much handling and perhaps waxing.

This piece marked Mr. Freer's first venture into the field of ceremonial bronzes, and was in fact one of the early oriental pieces in the collection which at this time included some 247 works of American art, 19 pieces of Japanese pottery, 1 Japanese painting, and 1 piece of Chinese pottery. At the time he bought it from R. E. Moore of New York, his comment was, "I believe this is a copy of an ancient Chou design and probably made in Japan." Mr. Lodge in 1923 wrote "Japanese(?)"; and in 1940 Mr. Wenley's note was "Probably Japanese." How far the two later opinions were influenced by what had been said before it is now impossible to say. Almost nothing is known about Japanese copies of archaic Chinese bronzes; but poor as this *kuei* is in terms of quality, it seems to be quite unlike those late Chinese bronzes that were evidently based on wood-block illustrations in the Sung and Ch'ing catalogues (cf. e.g. Nos. 19,



NUMBER SIXTY-TWO (94.17)

NUMBER SIXTY-TWO

32, 46, etc.). As will be seen in the stylistic discussion which follows, it is unusually like a number of early *kuei* of this rather unusual type, and it should also be noted that the major Sung and Ch'ing catalogues do not seem to illustrate a vessel of this shape combined with this decoration.²⁰⁵ In view of this and of the fact that the laboratory analysis gave no indication of anything suspicious, we have been inclined to give it the benefit of the doubt until something more definite turns up.

STYLE AND CHRONOLOGY

Perhaps the outstanding example of this type is the one in the Museum für Kunst und Gewerbe in Hamburg.²⁰⁶ with its cleanly and masterfully drawn *t'ao-t'ieh* and dragons standing out sharply against a neat ground of *lei-wen*. Our piece has the same decor in much cruder form, and the detail has been blurred by corrosion and perhaps by cleaning. Other *kuei* of the same straight-sided type are in the Kunstindustrie Museum in Copenhagen, a piece reportedly from An-yang,²⁰⁷ one in the Pillsbury Collection,²⁰⁸ and one in the Fogg Art Museum (1943.52.106). All three feature higher relief in the decor and more prominent segmented flanges, and they appear to be somewhat later in date. A *kuei* of the same type with flush decor, stylistically earlier than any of the foregoing, is in the Brundage Collection in San Francisco (B60.B34).

The similarity of this shape to footed pottery bowls found at An-yang suggests a ceramic prototype.²⁰⁹

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in what was probably a three-piece, six-division mold assembly. There is only slight evidence of mold joins on the top and bottom of one of the true-join flanges and on the foot. At the juncture of body and foot there are three equidistant rectangular holes

²⁰⁵ About the nearest they come may be seen in *Hsi-ch'ing*, i-pien, ch. 6, p. 45.

²⁰⁶ Mizuno, *In shū* . . . , Pl. 29.

²⁰⁷ Karlgren, *New Studies* . . . , Pl. XIV, No. 434; see also p. 89, where it appears among the bronzes "with certainty coming from An-yang hien."

²⁰⁸ Karlgren, . . . *Pillsbury* . . . , Pl. 54.

²⁰⁹ E.g. *I-chiu-wu-san* . . . , p. 36, Fig. 6, Nos. 5, 6, 7.

which probably had to do with spacers or lugs used to support the core. There appear to be chaplets on either side of some of the flanges and under the body bulge. The underside of the bottom is plain and without criss-cross lines or brackets, and the edge of the foot rim is smooth and shows no evidence of mold join. There is a sharp flare on the inside of the foot rim.

Much of the surface is metallic brown in tone with a rubbed look. Other areas are thinly covered with glossy green malachite and patches of azurite and cuprite. In the middle of one of the panels there is a small patch of red and green patina which bears the imprint of a fabric pattern, apparently a fine-weave silk. The fine lines of sunken decor, especially in the *lei-wen*, are filled with black substance, the same mixture of fine quartz and carbon seen on many early bronzes. The sunken decor has a smoothed down and worn look, but many of the lines appear to have been worked over and deepened with a tracer or blunt chisel. It is possible that this bronze came upon the scene quite early and has long been venerated in Chinese collections.

Composition: Sample taken from base.

Wet chemical analysis: Cu 82.6%; Sn 10.2; Pb 3.5; Total 96.3.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.2; Co 0.004; Ni 0.02; As 0.2; Sb 0.2; Bi 0.03; Al 0.002; Mg 0.001; Si 0.02.

Both Sn and Pb content of the alloy are below average.

Kuei

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of 11 characters inside bottom

Height, 28.3 cm. (11 $\frac{1}{8}$ in.)

Width, 34.2 cm. (13 $\frac{1}{2}$ in.)

Weight, 6.32 kg. (13 lbs., 15 oz.)

Accession number 38.20

The vessel of standard *kuei* shape and its high rectangular stand are a single piece. Both vessel and base are covered with designs in relief featuring bold *t'ao-t'ieh* patterns in the main zones flanked by crested birds. Around the neck are double pairs of *k'uei* dragons facing one another across monster masks. Around the base of the *kuei* proper are confronted pairs of serpents. The two handles have monster masks with bold horns on the top, and the mouth of the monster holds the head of a bird-like form complete with beak, eyes, wings, tail, and feet. Between the claws of the latter is a human mask. The surface is covered with a smooth, dark greenish patination on which are some areas of malachite encrustation.



NUMBER SIXTY-THREE (38.20)

STYLE AND CHRONOLOGY

The relief decor on this *kuei* is essentially late An-yang in style, but there are also a few elements usually associated with early Chou. If, for instance, we compare the *t'ao-t'ieh* on the body with such a classical Shang example as that on the *yu* Number 49, which it appears at first glance to resemble closely, or the animals in the uppermost band with those on the same *yu*, we may observe subtle differences. The representations on our *kuei* seem to be closer to that mode in which the forms are composed of bands of even width, tending to rectilinear formations with the corners rounded and hooks projecting at intervals from the sides, a mode which, seen in its fully developed form on the *fang-i* (No. 38), was popular through the first half-century or so of Chou.

Related examples of *kuei* on square stands similarly appear to date from the early part of the Chou dynasty. A piece without *lei-wen* (a phenomenon relatively frequent at the time) is in the City Art Museum of St. Louis;²¹⁰ another, in the Pillsbury Collection, Minneapolis, has the hooked flanges typical of the period.²¹¹ Two other examples with square platforms belong to the four-handled variety and can likewise be dated to the beginning of Chou. One in the Hakutsuru Museum²¹² exhibits vertical striations on the base and projecting bosses on the body (cf. *kuei* No. 66 for the discussion of both features); the other, the T'ien-wang *kuei*, is ordinarily dated to the very beginning of the Chou period on the basis of its inscription, although one scholar has recently argued that it was made by the Chou people in the reign of King Wu before they conquered the Shang.²¹³

The handles on the Hakutsuru vessel resemble ours in basic design, but are simpler; the eyes and beak of the bird are omitted, the wing has no serpent head, and the small human mask between the claws of the bird is missing. The same simplified form is seen in the handles of the

²¹⁰ Kidder, *Early Chinese bronzes* . . . , p. 78 and Pl. XXI.

²¹¹ Karlgren, . . . *Pillsbury* . . . , p. 101 and Pl. 52. See also Jung, *Shang-chou* . . . , nos. 288–300.

²¹² Mizuno, *In shü* . . . , Pl. 95.

²¹³ Watson, *Ancient Chinese bronzes*, p. 49, for a discussion of this piece (which he calls the "T'ien Wu *kuei*"); the suggestion of a Shang date was made by Sun Tso-yün, "Shuo 't'ien-wang *kuei*' wei Wu-wang nich-shang i-ch'ien t'ung-chi," *Wen-wu*, 1958, no. 1, pp. 29–31 where the piece is illustrated.

NUMBER SIXTY-THREE

Ta-pao *kuei*, which both Jung Keng and Kuo Mo-jo date, on the basis of the inscription, to the reign of King Ch'eng (1024–1005).²¹⁴ On the Pillsbury *kuei* on the other hand, an uplifted elephant's trunk is attached to the outer surface of what appears, in the other examples, to be the outthrust tongue of the horned feline beast at the top of this totem-pole-like assemblage. Such variations complicate the question of the iconographic significance of these handle formations. For example, Davidson's suggestion that the protrusion from the animal's mouth on the handles is not a tongue, but the beak of an additional bird,²¹⁵ is weakened by the fact that it is only on this one example that the main bird is furnished with a separate beak. On others, the protrusion apparently doubles as the tongue of the feline and the beak of the bird, resembling, in the latter function, the upturned beaks of owls on some double-owl *yu*.

The possibility remains that this vessel may be slightly earlier than any of the related pieces cited above, since it exhibits, or retains, as the case may be, more of late Shang style. If Karlgren's theory is correct, and names of the "X-fu" type in inscriptions always indicate a Chou date, it must be placed near the beginning of that dynasty; on the evidence of the style, we are bound to date it to the period of the Shang-Chou transition.

TECHNICAL OBSERVATIONS

The vessel and the large nearly square base are cast in one piece in what appears to be a two-piece, four-division mold. The true mold joins are in line with the two animal heads and the flanges which are cast integrally with the vessel. There is no evidence of a seam or join where the foot of the vessel and the square base meet. The mold divisions continue along the top surface of the base but not along the sides. Mold divisions for the base might have been along the corner edges – but there is no sign of them there now.

There are a great many chaplets in both the vessel and base. Four are clearly defined on each of the four faces of the base, and there are two

²¹⁴ Jung, *Shang-chou . . .*, no. 281.

²¹⁵ Davidson, *The bird- . . .*, (esp. pp. 8–9).

below each handle in the lowest circular band above the base. At least five appear in the bottom of the vessel, but their disposition is not symmetrical. Most are more or less square or rectangular in shape. Extending from the center bottom underneath is a short elongated boss which may be the remnants of a suspension for a bell. There are no criss-cross lines or brackets.

The handles are pre-cast with open channels on the inside which still retain the original clay core extending up into the animal heads. The vessel is cast to the handles, a fact which is shown by extensive spillover of metal from the vessel on to the handle stems (*fig. 41*). A radiograph shows that the square ends of the pre-cast handles are completely enclosed by spill-over metal from the vessel. The fine *lei-wen* design on the body is true and undistorted right up to the edge of the shoulder of the join. There are no signs of handle joins on the inside of the vessel.



FIGURE 41

NUMBER SIXTY-THREE

Chemical analysis of a sample of metal from one handle shows that its composition is slightly different from the metal of the vessel proper, but the difference is hardly significant.

The two sides of the base which lie beneath the handles are shorter than the other two (18.7 and 19.9 cm.). The details of the *t'ao-t'ieh* masks are similar but not identical. The *lei-wen* on all sides differ in detail and disposition. Another noteworthy feature is the deep undercutting about the bosses that form the eyes of the dragons, even the small serpents about the foot. The inscription was cast in; the bottoms of the grooves have a corrugated appearance caused possibly by mechanical cleaning.

The surface of the bronze is only thinly covered with grayish-green corrosion products. Much of this surface is lustrous black or gray. There are scattered small patches of cuprite and crusty malachite. Earthy accretions are lodged on the inside of the foot and base. There are no breaks, losses, or evidence of repair or paint.

Composition: Sample taken from lower edge of square base.

Wet chemical analysis: Cu 82.0%; Sn 13.2; Pb 3.6; Total 98.8.

Sample taken from underside of handle: Cu 82.3%; Sn 14.4; Pb 2.3; Total 99.0.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.3; Co 0.008; Ni 0.03; As 0.2; Sb 0.04; Bi 0.08; Cr 0.002; Mg 0.001; Mn < 0.001; Si 0.03.

INSCRIPTION

The inscription of 11 characters reads:

1. Po Che-fu made (this) valuable
2. *kuei* to entertain the King upon arrival and departure.



Kuei

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of 42 characters inside bottom

Height, 15.9 cm. (6¼ in.)

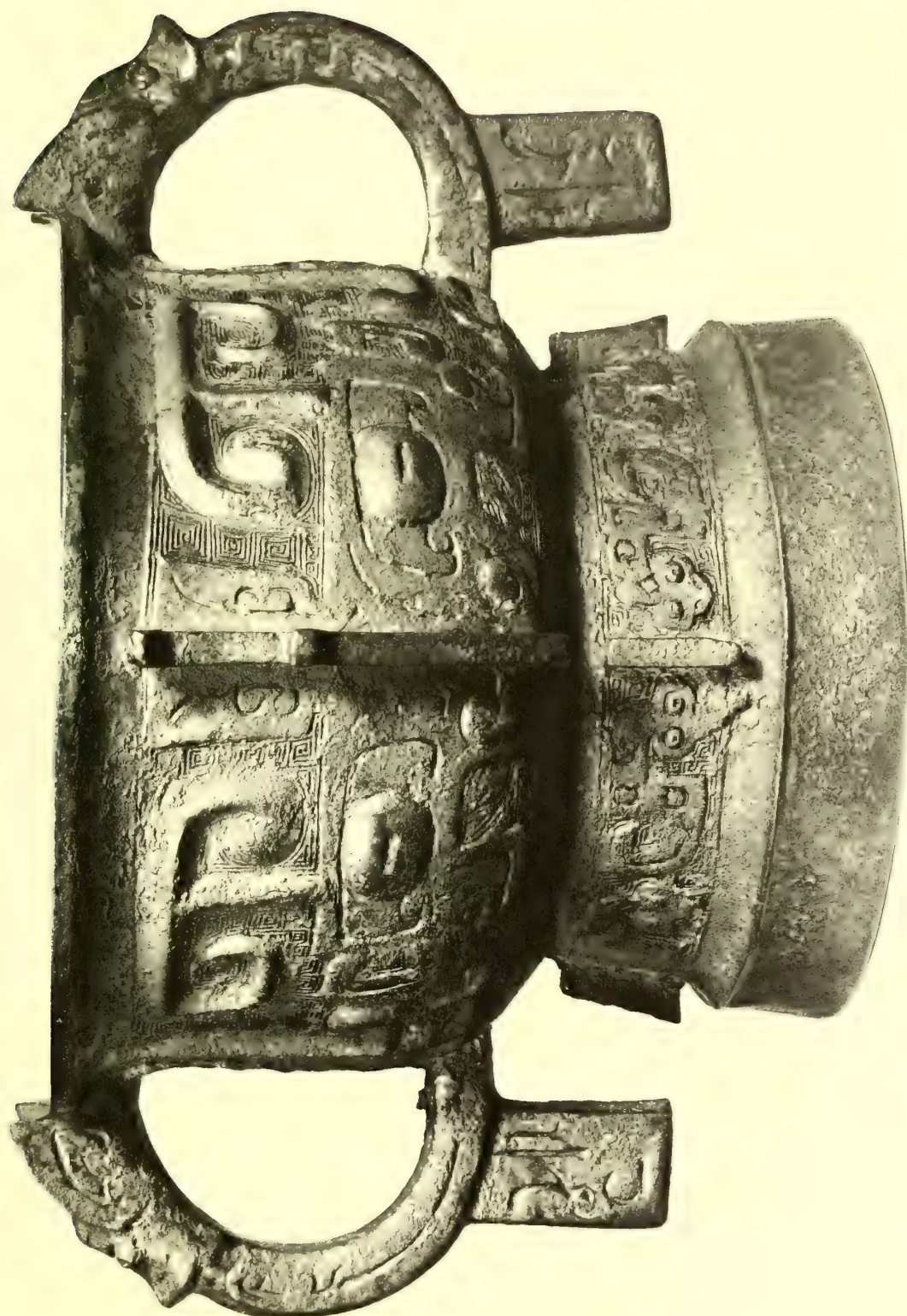
Width, 26.6 cm. (10½ in.)

Weight, 2.15 kg. (4 lbs., 12 oz.)

Accession number 11.38

The vessel of standard *kuei* form is decorated on the body with a massive *t'ao-t'ieh* centered on a flange on either side. Below this is a band of double pairs of confronted serpents. The two handles are topped by monster masks and have long lugs depending from the bottoms. The whole vessel is covered with a dark green patina showing considerable areas of malachite encrustation and earthy accretions.

The vessel was called Shang when Mr. Freer bought it from Riu Ching Chai of Peking. His own note reads, “. . . seems to be more Chou than Shang, but the inscription, when read, may give its real date.”



NUMBER SIXTY-FOUR (11.38)

NUMBER SIXTY-FOUR

STYLE AND CHRONOLOGY

This *kuei* belongs to the same family as the preceding although minor differences in detail are noticeable. In this case the handles join the body at the rim level and there is no band of dragons around the neck. The main *t'ao-t'ieh* is a simplified version of the same type and is more crudely executed as are the serpents that surround the concave area of the upper base. In this and several of the *kuei* that follow the handles are based on the "bird-in-the-animal's-mouth" design so clearly represented on the preceding. The head of the bird has disappeared altogether in this abbreviated version; the wings are barely indicated in relief on the sides of the handle, and the feet and tail are merely suggested by the sunken lines on the rectangular lugs below.

Kuei of this type are not uncommon, and there are a number of closely related examples in the Palace Museum in Taiwan.²¹⁶ They may vary somewhat in date, but in general they fall not far from the Shang-Chou transition or a little later.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in what seems to have been a two-piece, four-division mold assembly. The true mold joins are in line with the handles. Join traces are particularly noticeable under the handle lugs and on the edges of the flanges of the base. The handles are open-core castings, but they bear little evidence of join-traces in the animal heads or along their centers. Two vertical mold marks on the body form a rectangular undecorated area under each handle. One squarish chaplet can be seen under the body bulge and perhaps others are concealed under corrosion crusts. The bottom is criss-crossed by the network of narrow ridges common to this type of vessel. Much of the original upper core still remains along the inside ledges of the foot. Three symmetrically placed squarish chaplets are located in the bottom within the inscription area. It is noteworthy that each of the three chaplets is cut across by a portion of the grooves of an inscription character. The character *wang* which crosses one chaplet is incomplete having part of the vertical stroke

²¹⁶ *Ku-kung-t'ung-ch'i* . . . , hsia, hsia-pien, pp. 145-9.

missing. This missing portion of the character is directly in the middle of the chaplet. While the characters exhibit all the normal features of a cast-in inscription, the undercut, wavy edges and the even continuation over chaplets suggest that the inscription might have been etched. Radiography further reveals that the criss-cross lines on the underside are also interrupted in the middle of the chaplet but that the broken ends of the lines actually cross the edges of the chaplet before they terminate. Excavations of residues of core clay from the underside of the vessel revealed the edges of the chaplet and confirmed the radiograph reading. It could be seen also that the criss-cross lines that cross the edges of the chaplet terminate in a thickened and rounded blob of metal, not a broken end. (The observations made on this single chaplet if they could properly be interpreted, would perhaps have an important bearing on many aspects of bronze casting technology in China. See Vol. II, Ch. VI.)

Although the dark green crusty patina has an artificial appearance, examination shows that it is mostly naturally formed malachite interspersed with a little azurite. There are no repairs; and in ultra-violet light, there is no evidence of paint or touch up.

Composition: Sample taken from underside of handle lug.

Wet chemical analysis: Cu 76.0%; Sn 14.8; Pb 7.9; Total 98.7.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.06; Co 0.007; Ni 0.03; As 0.3; Sb 0.1; Bi 0.07; Cr 0.003;

Mg 0.001; Mn 0.001; Si 0.01.

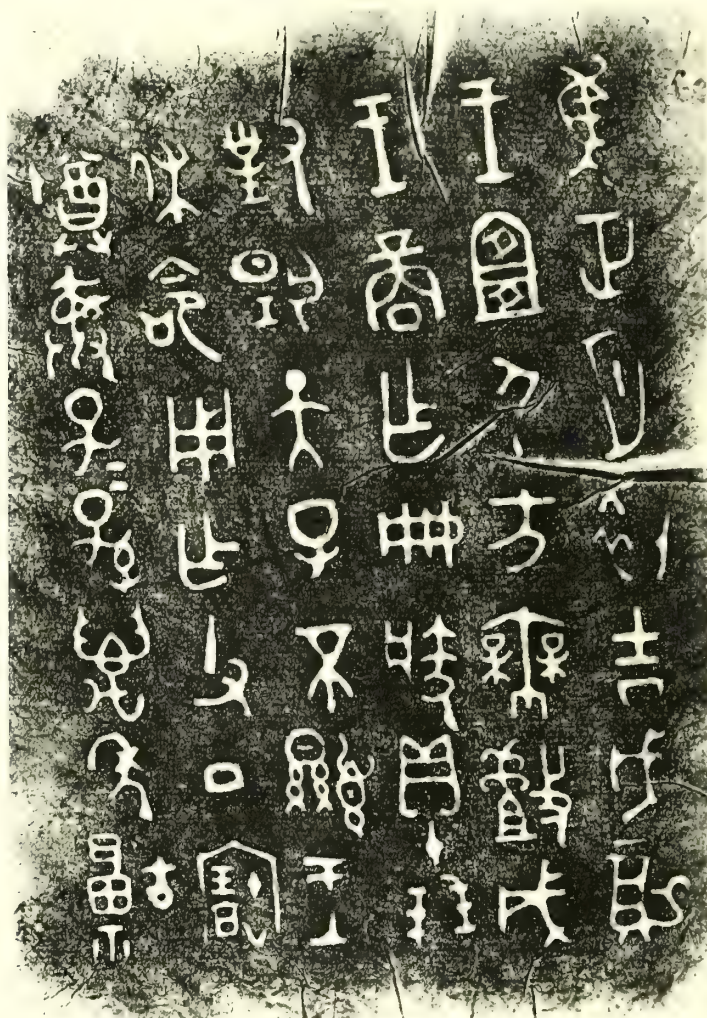
INSCRIPTION

The inscription of 42 characters reads:

1. In the first month, in the first quarter of the month, on the day *wu-ch'en* (5).
2. the King invoked a curse on the Jen-fang. (They were) no mean adversaries. (When) all (was accomplished),
3. the King awarded the Tso-ch'e X: cowries – ten strings.
4. (He) responded extolling the Son of Heaven's great and illustrious King.

NUMBER SIXTY-FOUR

5. Grace. Command. Therefore made (for) Fu-ting (this) valuable and
6. honoured *i*. Sons and grandsons for a myriad years blessings (?).





Inside top of one handle

Kuei

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of three (?) characters inside bottom

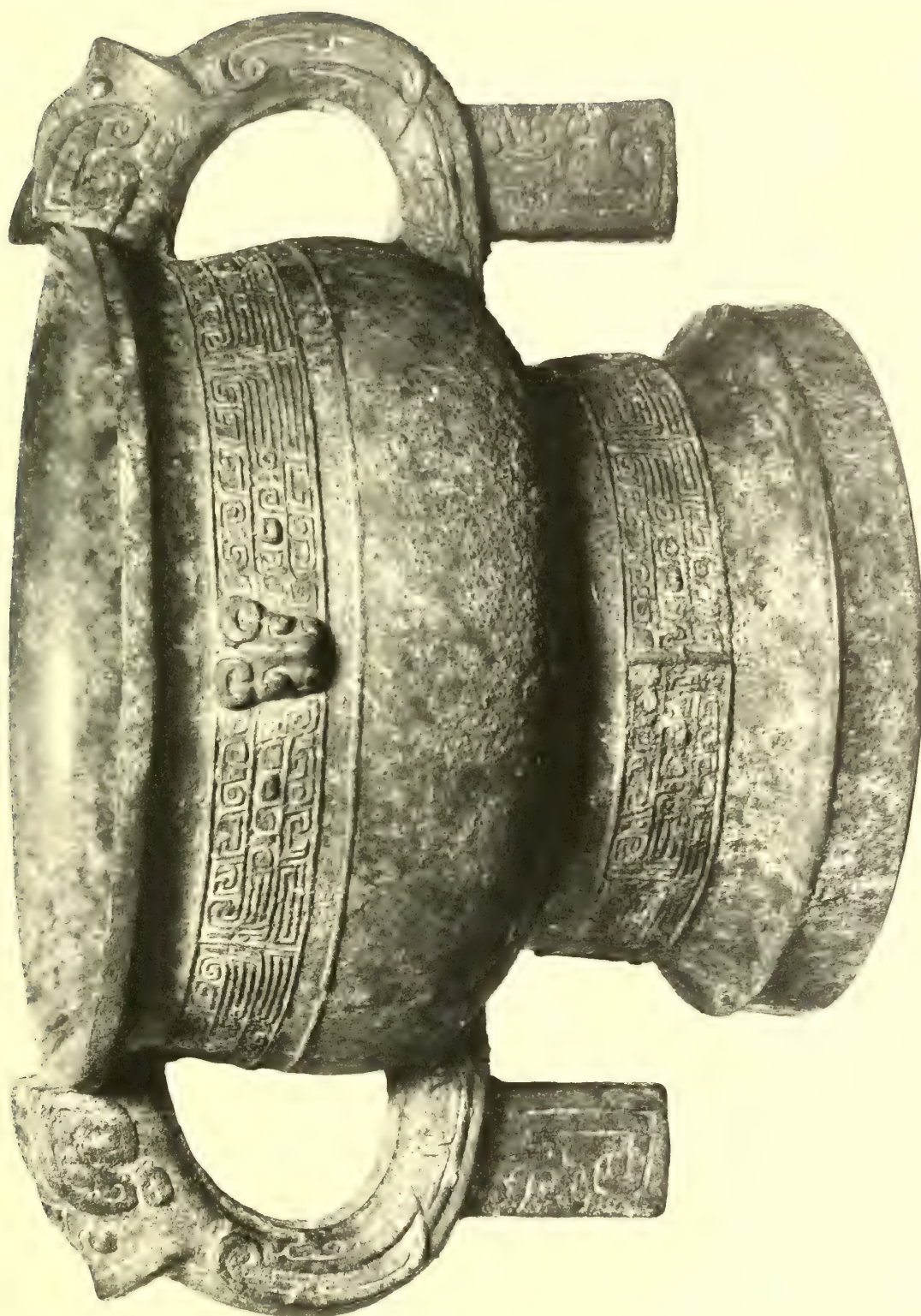
Height, 14.3 cm. ($5\frac{5}{8}$ in.)

Width, 24.4 cm. ($9\frac{5}{8}$ in.)

Weight, 1.50 kg. (3 lbs., 5 oz.)

Accession number 24.14

This small vessel has typical *kuei* handles with monster masks at the top, bird wings at the side, and pendent lugs below. Except for the narrow band of finely deteriorated dragon form, the so-called “animal triple band,” around the neck and the high base, the body is plain. In the center of each side of the neck band is a small feline monster mask in relief. The dark green patina is encrusted with malachite, cuprite, azurite, and some earthy accretions.



NUMBER SIXTY-FIVE (24.14)

NUMBER SIXTY-FIVE

STYLE AND CHRONOLOGY

The most striking feature of this *kuei* is the plain smooth surface bounded at the top and bottom by borders of the animal triple band pattern. A similar decorative scheme appears on the *Ch'in kuei* which has been dated by its inscription to the reign of King Ch'eng (1024–1005).²¹⁷ On the other hand a number of related *kuei*, differing only in such details as the placement of the handles, the shape of the handle lugs and the treatment of the foot, are assigned to the Shang dynasty by Jung Keng;²¹⁸ and Kuo Mo-jo illustrates one with a very similar foot but with hooked handle lugs without attempting an attribution.²¹⁹ In general this family seems to fit into the closing years of Shang or the early part of Chou on all grounds.

TECHNICAL OBSERVATIONS

This vessel is cast in one piece directly from a two-piece, four-division mold with the true joins in vertical line with the handles. Mold marks show faintly on the bottoms of the handle lugs. The handles are channeled on the inside and filled with original clay core. The underside of the bottom is plain. Along the foot rim the line of contact between the outer molds and the upper core is plainly visible. There are at least two chaplets inside the bottom, possibly more. The characters of the inscription are poorly cast and barely legible.

Much of the surface is covered with dull and crusty corrosion products and earthy accretions. There is no evidence of breaks, losses, or repairs.

Composition: Sample taken from handle lug.

Wet chemical analysis: Cu 82.0%; Sn 13.8; Pb 1.8; Total 97.6.

Additional elements estimated by emission spectrometry: Ag 0.09%;

Au < 0.01; Fe 0.03; Co 0.003; Ni 0.03; As 0.2; Sb 0.01; Bi 0.03;

Mg < 0.001; Si 0.004.

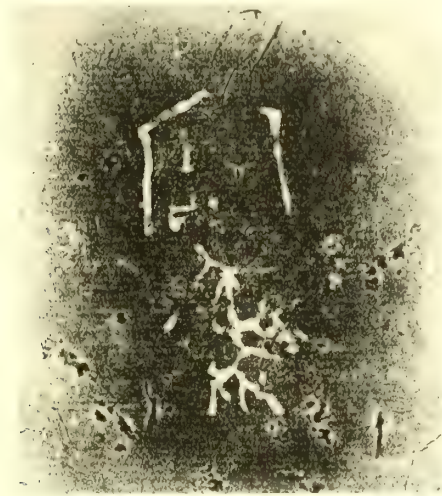
²¹⁷ Kuo Mo-jo, *Liang chou . . .*, p. llv; Ch'eng Meng-chia, *Hsi-chou . . .*, Pl. I (top) and pp. 73–6.

²¹⁸ Jung, *Pao-yün-lou . . .*, pp. 41, 42, 43, 44, 45; Shang Ch'êng-tso, *Shih-êrh-chia . . .*, p. 8.

²¹⁹ Shang Ch'êng-tso, *op. cit.*, 17, *huo*.

INSCRIPTION

Owing to some mishap during the process of casting, the inscription has not fully registered. Only the last two characters “. . . precious *i*” are reasonably clear. Originally the text would have comprised four or five characters.



Kuei

Early Chou dynasty (late 11th–early 10th century B.C.)

No inscription

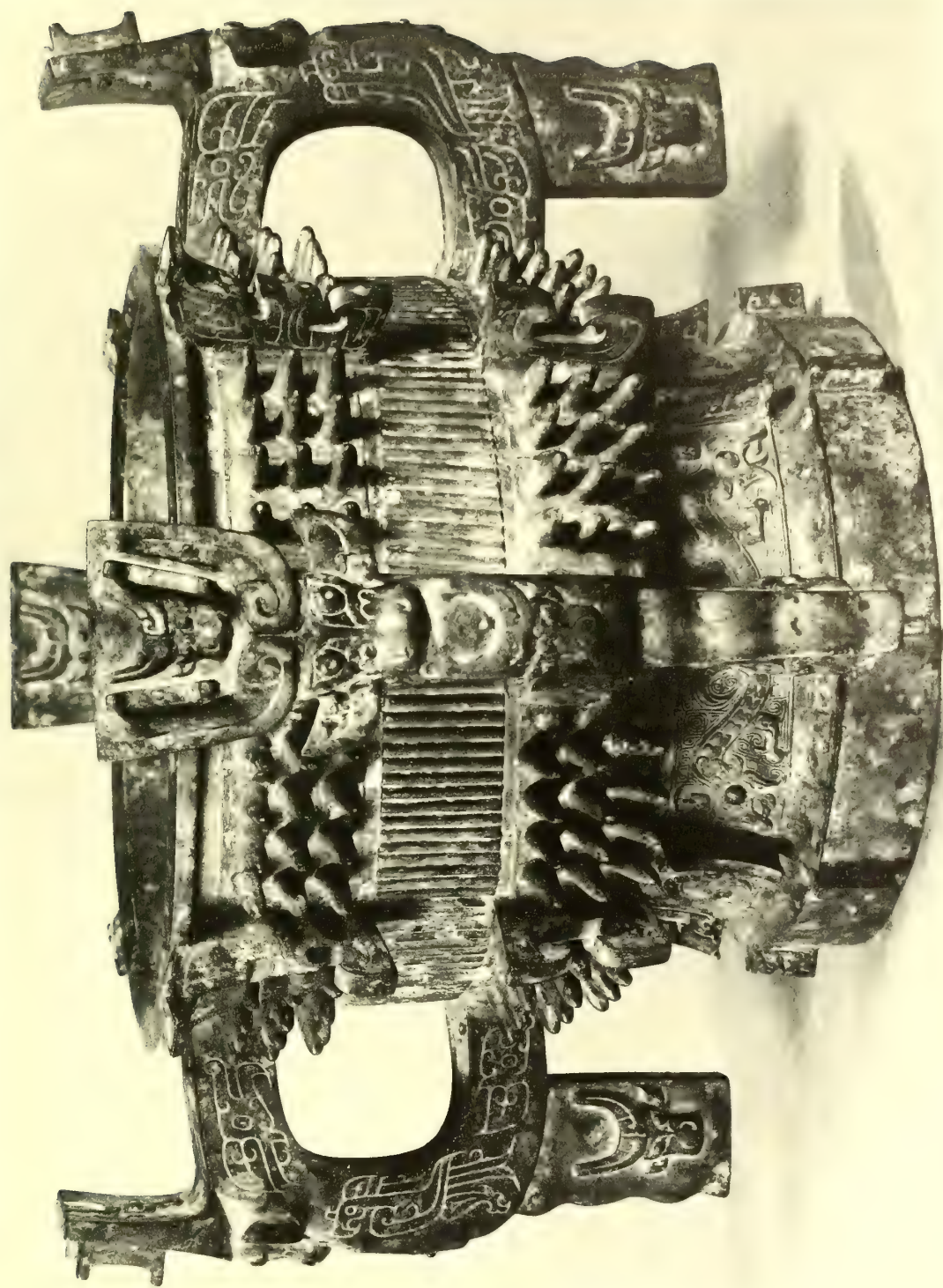
Height, 23.5 cm. (9 $\frac{1}{4}$ in.)

Width, 36.5 cm. (14 $\frac{3}{8}$ in.)

Weight, 8.53 kg. (18 lbs., 13 oz.)

Accession number 31.10

The vessel has four heavy handles, and the surface is dominated by two bands of long spikes, each arranged in groups of twelve between the handles and the intermediate segmented flanges. A single broad band of vertical ribbing surrounds the center of the body and on the base are four pairs of confronted *k'uei* dragons centered on small flanges. The dominant decoration consists of water buffalo heads which appear in relief on the handles and on the tops of the flanges a total of no less than 28 times. The smooth, grayish patina shows some areas of malachite encrustation.



NUMBER SIXTY-SIX (31.10)

NUMBER SIXTY-SIX

STYLE AND CHRONOLOGY

As noted in the discussion of Number 50, this *kuei*, together with that *yu*, originally belonged to an altar-set which was unearthed intact but later dispersed. The two pieces are outstanding examples of an apparently short-lived early Chou style characterized by a profusion of heavy angular projections that violate the surface outline of the vessels, and by a reduction in the repertory of animal motifs so that a single animal, here a horned bovine, dominates the iconographic theme of each piece. Except for the birds rendered in sunken line on the sides of the handles, and the *k'uei* dragons in the foot-band, the animal representations on this piece are limited to the 28 bovine masks.

Three examples of the four-handled *kuei* dating from the early Chou period have already been cited in connection with Number 63; the T'ien-wang *kuei*, the Ta-pao *kuei*, and the piece in the Hakutsuru Museum. To these can be added those in the Brundage Collection (B60.B111) and the Fogg Art Museum (1944.57.17a), both cruder and probably somewhat later than this.

As noted in the discussion of the *yu*, the band of vertical ribbing is a feature confined (excluding recent imitations) to bronzes of the early Chou period. The spikes that protrude from the bands above and below this represent a last extreme stage of a development that begins in the Shang dynasty with an all-over diaper pattern featuring low bosses in the center of each lozenge, as on the *ting* Number 29. Variants of this decor type seen on early Chou vessels are mentioned in the discussion of the *fang-ting* Number 34. On the Hakutsuru *kuei*, and the very similar piece in the Moore Collection,²²⁰ the bosses are longer than on Shang vessels, but shorter than the present ones, and still set in the diaper pattern. On a handleless *kuei* formerly in the Manchu Imperial Household Collection,²²¹ they are elongated and more closely spaced. On ours, the diaper pattern has disappeared altogether; and the spikes are even closer set and placed in horizontal and vertical rows. While this series need not conform to the actual chronological order of the three vessels

²²⁰ Mizuno, *In shū . . .*, Pl. 95; Umehara, *SKS/E II*, 105.

²²¹ Jung, *Wu ying tien . . .*, I, 54.

concerned, it probably indicates the direction this variety of decor took from the Shang into the early Chou period.

TECHNICAL OBSERVATIONS

The four handles were precast, and the vessel was cast on to them in what appears to be a four-piece, eight-division mold. The handles are open-core cast and are centered on the true join divisions; the clay cores extend down into the lobes. The four vertical pairs of ornate flanges midway between the handles are also precast units, and the vessel was cast to them. There are mold joins in the ribbing between each of the two upper flanges in line with the left face of each flange and these continue down into the plain area below the body bulge. This feature is noteworthy as the mold sections usually join along the middle of the flange.

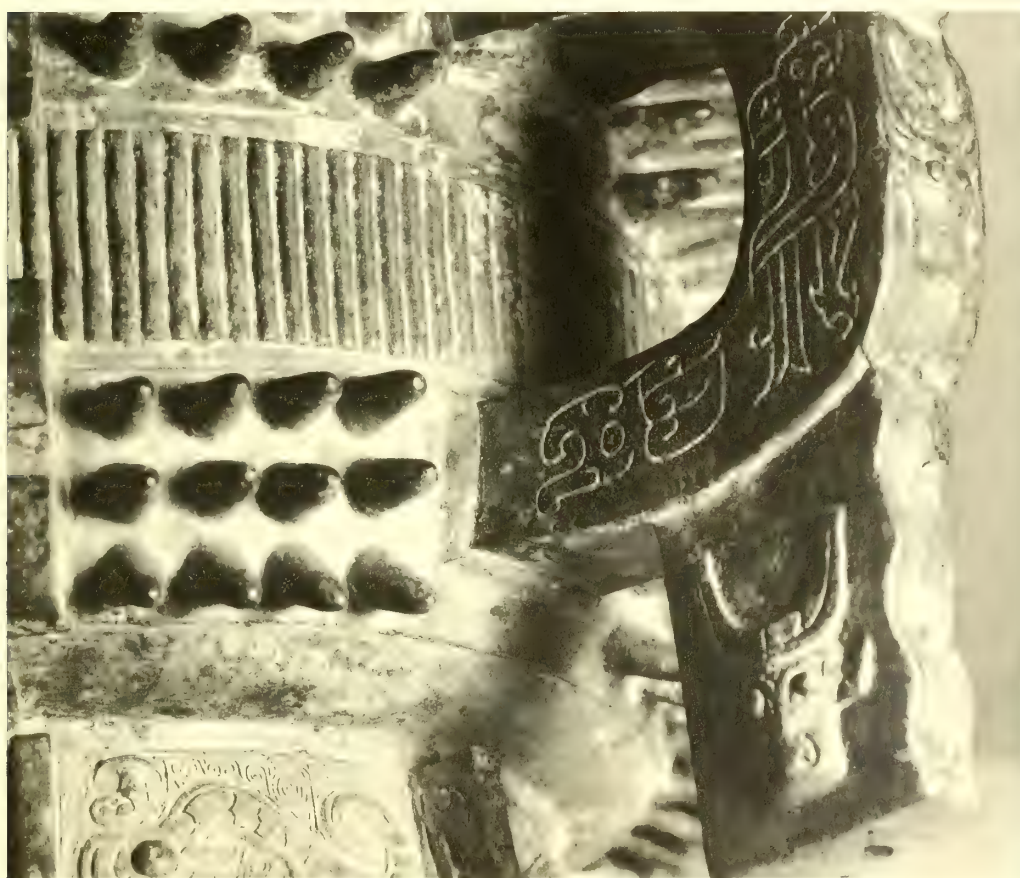


FIGURE 42

NUMBER SIXTY-SIX

The eight flanges on the base, however, are cast as one with the vessel as are the spikes, which total 192 in the 16 panels. The joins where the vessel is cast on to pre-cast members are well finished with the vessel metal forming a neat bevel of regular width sloping to the member (*fig. 42*). Two of the pre-cast flanges are not fully covered by the vessel metal but have a groove on either side which insures a firm locking action by the cast-over metal (*fig. 43*). On the interior and coinciding with the flanges are vertical pitted areas which appear to be casting

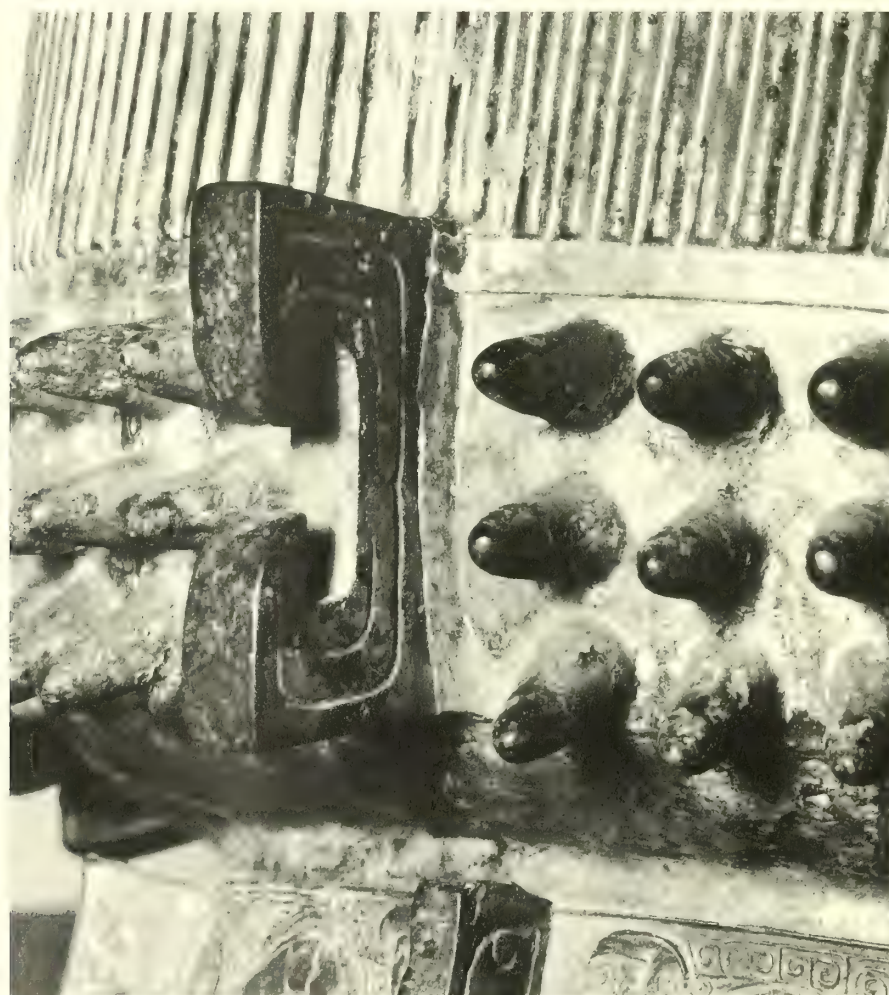


FIGURE 43

defects resulting from contact of molten metal with the solid metal of the precast flanges.

Chaplets are located approximately in the center of the groups of spikes, one in each group. There are four brackets underneath at the angle of the bottom and the foot, but there are no criss-cross marks.

The sunken decor on the sides of all four handles is identical possibly indicating the use of a stamp or stencil in their execution.

The surface of the vessel has thin metallic gray patina with weathered patches of malachite. A dull azurite crust covers much of the underside. The condition is excellent.

Composition: Sample taken from foot.

Wet chemical analysis: Cu 70.3%; Sn 10.0; Pb 14.7; Total 95.0.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Au < 0.01; Fe > 1.0; Co 0.03; Ni 0.03; As 0.3; Sb 0.04; Bi 0.05;

Cr < 0.001; Al 0.002; Mg < 0.001; Mn 0.004; Si 0.05.

Wet chemical analysis – sample taken from under handle lug: Cu 70.7%; Sn 10.7; Pb 13.7; Total 95.1.

Trace elements estimated by emission spectrometry are present in about the same proportion as found in the sample from the foot.

Kuei

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of four characters inside both vessel and lid

Height, 18.8 cm. ($7\frac{3}{8}$ in.)

Width, 25.7 cm. ($10\frac{1}{8}$ in.)

Weight, 2.30 kg. (5 lbs., 1 oz.)

Accession number 17.193

Three similar bands of decoration appear on the otherwise plain vessel and lid. They consist of confronted pairs of animals that look like water buffalo with their knees bent. The lid has a circular finial which can serve as a foot when inverted, and the two handles have the usual monster masks on top and dependent lugs below. The even, dark green patina shows some areas of malachite encrustation. Yamanaka and Company of New York sold Mr. Freer this bronze as Six Dynasties. His own note reads, “Genuine specimen of Han or Six Dynasties.”



NUMBER SIXTY-SEVEN (17.193)

NUMBER SIXTY-SEVEN

STYLE AND CHRONOLOGY

An approximate parallel to the shape, with rather similar handles, but with solid rectangular lugs instead of hooked shapes, may be seen in the two *Ling kuei*, reportedly found at Lo-yang, and datable through their inscriptions, according to Ch'en Meng-chia, to the reign of King K'ang (1004–967).²²² A more closely related *kuei*, in the collection of Denis Cohen is dated by Watson to the same period.²²³ The handles on these show a further simplification of the type discussed in connection with the *kuei* (No. 64).

The most striking feature of this vessel is the bands of kneeling water buffalo, rendered in simple relief against a plain ground. This technique occurs occasionally on early Chou bronzes in motifs that are otherwise not unusual for the period; a *kuei* in the collection of Lord Cunliffe, for example, features long-crested birds that are distinguished from the common variety only by the absence of linear surface ornament,²²⁴ and another in the former Manchu Imperial Household Collection has trunked dragons of the same character.²²⁵ These are typical examples of the frequent elimination of *lei-wen* and other linear ornaments on Late Shang and early Chou bronzes.

The most interesting parallel to the bovines, however, is a *yu* in the Pillsbury Collection²²⁶ decorated with crouching deer. These, like our water buffalo, are rendered in true plastic relief, in smooth, convex forms. As noted by both Karlgren and Watson,²²⁷ the deer display an unusual degree of naturalism, and the same could be said of the buffalo with all their ungainliness. Karlgren suggests that the deer on the Pillsbury *yu* have affinities with the Northern Nomad animal style, a likelihood strengthened by the inscription, according to which the vessel was made by the prince of Mo, a northern tribe, to commemorate a gift

²²² Ch'en Meng-chia, *Hsi-chou . . .*, No. 10, Pl. XIV–XV and pp. 76–78.

²²³ Watson, *Ancient Chinese bronzes*, Pl. 42a.

²²⁴ Watson, *Ancient Chinese bronzes*, Pl. 44b.

²²⁵ Jung, *Wu-ying-tien . . .*, p. 63.

²²⁶ Karlgren, . . . *Pillsbury . . .*, No. 15, Pl. 20–21.

²²⁷ Watson, *op. cit.*, p. 40.

of three deer from the King. The appearance of a “distinct and near-naturalistic style” in the hunting-scene vessels several centuries later in the same area of northeast China, the ancient state of Yen, modern Hopei Province, suggests the persistence of a local style in this area.

TECHNICAL OBSERVATIONS

The casting appears to have been made in a two-piece, four-division mold assembly with the mold joins located in line with the handles, which were cast as one with the vessel; these are channeled and filled with original clay core. On the side under each handle is a raised undecorated area formed apparently against the surface of the handle core. Under the bulge of the body four chaplets are evenly disposed, and there may be others inside the bottom concealed by the corrosion. The bottom underneath is plain. The lid, which fits only one way over a high rim, seems also to have been cast in a two-piece mold in line of the two rectangular spacer openings in the side of the finial; around this are five (possibly six) squarish chaplets in the undecorated band. The bulging eyes of all of the water buffalo are noticeably undercut and even appear to be peened over. The inscriptions in both vessel and lid appear to have been cast by standard methods; the strokes of the body inscription contain some malachite and cuprite.

The surface is quite smooth and black but interrupted with thin patches of blue-green patina. There is little or no tin-oxide patina. The rim under the cover is bright brassy metal.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 78.5%; Sn 10.3; Pb 8.5; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.3; Co 0.007; Ni 0.03; As 0.3; Sb 0.3; Bi 0.07; Mg < 0.001; Si 0.001.

INSCRIPTION

The inscription is incorporated in both the vessel and the lid and reads: “Made (this) valuable and honoured *i*.” A rubbing has been reproduced

NUMBER SIXTY-SEVEN

in *Hsiao-chiao* (7.64a). Forgers have often contented themselves with limiting their efforts to this incomplete sentence (cf. Jung Keng, *Shang-chou . . .*, pp. 199–200); we can trace their manipulations from the period of the Sung catalogues through the early Ch'ing catalogues up to the present. It cannot, of course, be surmised that every such inscription text is spurious.



VESSEL



COVER



Detail of handle (slightly enlarged)

Kuei

Early Chou dynasty (10th century B.C.)

No inscription

Height, 16.0 cm. (6 $\frac{1}{4}$ in.)

Width, 30.2 cm. (11 $\frac{7}{8}$ in.)

Weight, 4.39 kg. (9 lbs., 11 oz.)

Accession number 16.480

The large *t'ao-t'ieh* in the main band of decoration are flanked by vertical dragons, and on the neck and foot are bands of confronted pairs of crested birds. The handles consist of the usual monster mask and bird combination. The entire vessel is covered with a heavy malachite encrustation and a good deal of earthy accretion to a point where the design is largely obscured.

Mr. Seaouke Yue of Shanghai sold the piece to Mr. Freer in New York as Shang. Mr. Freer's own note reads, "Very important. Note beautiful tones of green and blue, and exquisite craftsmanship and quality of metal. I am uncertain whether Shang or Chou, but the design leads me to believe the latter, notwithstanding Mr. Yue's positive claim that it is Shang; however, it would be considered Shang on the scholarship found in 'Thoms on Ancient Chinese Vases of the Shang Dynasty,' and which is considered authoritative."



NUMBER SIXTY-EIGHT (16.480)

NUMBER SIXTY-EIGHT

STYLE AND CHRONOLOGY

The birds in the upper band are of the type common to vessels of the 10th century, several of which are cited in the discussion of the *ting* Number 33. Parallels to the shape, and to the distinctive formation of the handles, may be seen in the Kuo-po *kuei*, which Kuo Mo-jo dates to the time of King Chao (966–948);²²⁸ the T'ao *kuei*, datable to the latter part of the reign of King Ch'eng or the succeeding reign of King K'ang; i.e., the early 10th century;²²⁹ and the Ching *kuei*, placed by Kuo Mo-jo in the reign of King Mu (947–928).²³⁰ In view of this spread of related vessels over at least three reigns, we do not attempt to assign the present *kuei* a more precise date than that indicated above.

TECHNICAL OBSERVATIONS

The vessel, including handles, is cast in one piece in a two-piece, four-division mold. In spite of heavy corrosion, vertical mold marks are plainly visible at the quarters, especially under the handles. These are made in the traditional way, channeled in the inside and filled with original clay core. The band of the decor does not continue under the handle where there are clear marks of the handle core, a further indication that these were cast with the vessel. There are two depressions on the inside, one directly behind each animal mask, probably to counteract shrinkage after casting. The underside of the bottom is plain. If chaplets are present, they are hidden by corrosion crusts.

The surface is thinly encrusted inside and out with malachite, atacamite, and cuprite mixed with earth. Scattered small areas where the surface has been replaced by tin oxide are lustrous and metallic. The object was apparently long buried, and has not been cleaned since recovery. There is no evidence of paint or repairs.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 78.2%; Sn 17.1; Pb 3.2; Total 98.5.

²²⁸ Kuo Mo-jo, *Liang chou . . .*, rubbing, *t'u-lu*, fig. 62, discussion, *k'ao-shih* p. 54.

²²⁹ Jung, *Shang chou . . .*, No. 266; the inscription discussed by Loehr, *Bronzetexte . . .*, I, p. 315 ff.

²³⁰ Kuo Mo-jo, *op. cit.*, *t'u-lu* 63; *k'ao-shih*, 55v; also Jung, *op. cit.*, no. 271.

NUMBER SIXTY-EIGHT

Additional elements estimated by emission spectrometry: Ag 0.2%;
Fe 0.1; Co 0.02; Ni 0.03; As 0.2; Sb 0.09; Bi 0.07; Al < 0.001;
Mg < 0.001; Si 0.02.

Kuei

Early Chou dynasty (10th century B.C.)

Inscription of seven characters inside the bottom

Height, 14.6 cm. ($5\frac{3}{4}$ in.)

Width, 27.0 cm. ($10\frac{5}{8}$ in.)

Weight, 2.27 kg. (5 lbs.)

Accession number 11.53

The typical pattern of *kuei* decoration in this case consists of crested birds with their heads turned backwards. Two on each side combine to form the major *t'ao-t'ieh* decoration; two pairs are confronted across a monster mask in each side of the neck zone; and on each side of the base are two extremely elongated birds. The handles show a stylized and simplified form of the customary monster head on the top and dependent lug below. Under each handle is a vertically placed cicada. The vessel is largely covered with malachite and cuprite encrustations which have been polished over in the Chinese manner. There are several breaks in the base and one sizable repair.



NUMBER SIXTY-NINE (11.53)

NUMBER SIXTY-NINE

STYLE AND CHRONOLOGY

Several *kuei* of similar shape are cited in the discussion of the previous piece (No. 68); and all seem to suggest 10th century for this stage in the development of the form. The motif that occupies the main areas of the body, a confronting pair of birds, is treated at some length in connection with the *yu* Number 58, the *kuei* Number 70 and the *tsun* Number 74. Within the sequence formed by these three, the present *kuei* has most in common with Number 70, and is probably not far removed from it in date. The Ching *kuei* mentioned in connection with Number 68 is also closely similar. A *yu* with birds nearly identical in design, but lacking the *lei-wen* ground, the Keng-ying *yu*, is dated by Ch'en Meng-chia to the time of King Chao (966–948), although his reasons are stylistic rather than epigraphic.²³¹

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in a two-piece, four-division mold, and the mold joins are located along the line of the handles which are one with the vessel; they are channeled on the inside and filled with original clay core. The hook of one of the handle lugs is completely closed in the line of the mold marks with a web of metal, and the other is partially closed. On the side, directly under each handle, a cicada pattern is modeled in relief apparently from a negative cut in the handle core. Each cicada is enclosed by ridges formed apparently by mold joins at the edges of these cores. The underside of the bottom is plain. Four chaplets or spacers can be seen inside the bottom opposite the corners of the inscription cast in the bottom, and two more are located within the inscription area. In spite of corrosion crusts, other chaplets are discernible on the outside of the vessel, some in the midst of decor. The inscription is apparently cast in the usual way. There are breaks in the area of the inscription and also in the lower sidewall. An irregular hole about 5 cm. long in the upper sidewall has been repaired with an insert of new metal. The surface is mostly covered with warty malachite and cuprite.

²³¹ Ch'en Meng-chia, *Hsi-chou* . . . , Part III, pp. 91–93, and Pl. 9.

Composition: Sample taken from handle lug.

Wet chemical analysis: Cu 82.6%; Sn 13.2; Pb 1.5; Total 97.3.

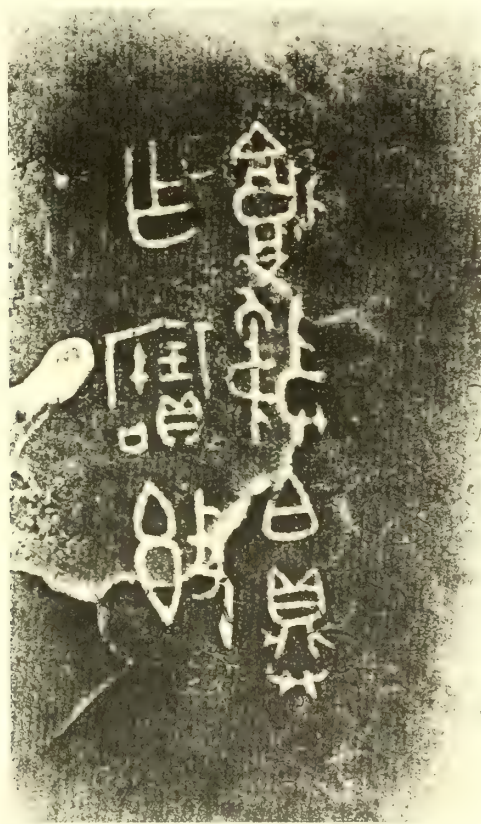
Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.2; Co 0.01; Ni 0.02; As 0.3; Sb 0.1; Bi 0.2; Zn <0.03; Mn <0.001; Si 0.001.

INSCRIPTION

The inscription which comprises seven characters seems to be incised. It has not hitherto been published. In the calligraphy there is clear evidence that the inscription should be suspect, while the combination of Ch'eng-Kuo-Po-Ting in the first line raises several questions of doubt. The inscription may be translated as follows:

1. The Count of Ch'eng-Kuo, Ting,
2. made (this) valuable *kuei*.



Kuei

Early Chou dynasty (10th century B.C.)

Inscription of seven characters inside bottom

Height, 14.0 cm. (5½ in.)

Width, 26.1 cm. (10½ in.)

Weight, 2.35 kg. (5 lbs., 3 oz.)

Accession number 15.102

The main areas of design resemble those of the previous *kuei* in that they are made up of crested birds. The differences in this case occur around the bottom where the birds have entirely deteriorated into an elongated scroll pattern, and at the handles each of which is a single elaborately conceived crested bird. The brass colored surface has considerable malachite and cuprite encrustation, and one side of the foot rim is broken. An unusual feature is that the thin ragged lines often found under the bottoms of such vessels in a simple criss-cross or diamond pattern are here arranged to depict a coiled dragon.

Formerly in the Bing Collection, this piece was bought by Mr. Freer from Lai-yuan and Company of New York who called it Chou. This attribution has not been changed; and Mr. Freer's note, written some years later, simply reads, "Very important. On loan at the Metropolitan Museum, March 1918."



NUMBER SEVENTY (15.102)

NUMBER SEVENTY

STYLE AND CHRONOLOGY

This broader, squatter form of the *kuei*, heavier in feeling, probably takes us further into the Chou dynasty and closer to typical Middle Chou *kuei* than the previous examples, which retain more of the strength and tension of the Shang form. The Ching *kuei*, mentioned in the discussion of Number 68, is quite similar in shape, and Kuo Mo-jo dates it to the time of King Mu. The handles are closely matched by those on the Lu *kuei*, which he assigns to the same reign;²³² the chief difference is that in ours, the spaces between the pendent feet of the birds on the handles and the foot of the vessel are filled with webs of bronze. A *kuei* formerly in the collection of C. T. Loo, Paris, offers another example of such handles on a piece that in other features as well is closely related to this one.²³³

The pair of confronted birds with heads turned back forms the main motif of the body and has numerous parallels. Examples that appear to belong to the same stage of development have been dated to the 10th century by Watson²³⁴ and Ch'en Meng-chia;²³⁵ a *tsun* with birds of this type bears an inscription belonging to a group that Karlgren places in the time of King Mu.²³⁶ Comparison of this last vessel with our *tsun* Number 74 reveals that the confronted birds on the present *kuei* and all the related pieces are approaching a stage of dissolution in which all reference to the bird form will finally be lost, and only the broad meaningless bands of the Middle Chou style will remain.

The similarity of our *kuei* with the above mentioned pieces, all linked in one way or another with the reign of King Mu (947–928), tends to suggest an attribution to the same period.

The dragon in thin relief lines on the base appears on a number of other *kuei*²³⁷ and, quite unexpectedly, on the K'ang-kung *yü* in Toledo.

²³² Kuo Mo-jo, *Liang chou* . . . , No. 83, illus., and p. 62, inscription.

²³³ Elisseeff, *Quelques heures* . . . , pp. 229–241, Pl. LXVIIIa.

²³⁴ Watson, *Ancient Chinese bronzes*, Pl. 37b, also in Jung, *Wu ying tien* . . . , 48 and *Shang chou* . . . , No. 272.

²³⁵ Ch'en Meng-chia, *Hsi-chou* . . . , Part III, pp. 91–93, and Pl. 9. Another *yu* of squatter shape but with birds very like those on our *kuei* is illustrated by Yetts, *Eumorfopoulos* . . . , vol. I, No. A27, Pl. XXI.

²³⁶ Karlgren, *Yin and Chou* . . . , p. 35 and Pl. XXI, B36.

²³⁷ E.g. Karlgren, . . . *Pillsbury* . . . , Pl. 51; Kelley and Ch'en, . . . *Buckingham* . . . , Pl. XVII; Umehara, *SKS/J*, II, 107 and 109; and Ch'en, *Hsi-chou* . . . , II, Pl. 7.

TECHNICAL OBSERVATIONS

The vessel and handles are cast in one piece; and although there is slight evidence of section lines running vertically along the axis of the handles, it is possible it was not cast in a piece mold. The handles are clay cored, even down into the lobes; but unlike most examples of this type, they are cast full round, without channels. The underside of the bottom has four small brackets at the angle with the foot. The cicada motif under each handle is much like that on the previous *kuei* Number 69. Chaplets occur on the inside of the bottom in and around the inscription, and there is faint evidence of them under the bulge of the vessel body.

The surface is irregularly and unevenly corroded. Many areas have dull metallic lustre while others are encrusted with malachite and cuprite. Both top and bottom rims are especially heavily corroded. A portion of the foot has broken out and has been mended.

Composition: Sample taken from angle of handle (on side to left of inscription)?

Wet chemical analysis: Cu 77.2%; Sn 16.2; Pb 3.2; Total 96.6.

Additional elements estimated by emission spectrometry: Ag 0.07%; Fe 0.07; Co 0.002; Ni 0.02; As <0.07; Sb 0.03; Bi 0.03; Al <0.001; Mg <0.001; Si 0.04.



NUMBER SEVENTY

INSCRIPTION

This cast-in inscription of seven characters reads:

1. Shih Mei-hsiung made (for)
2. Tsu-hsin (this) valuable *i*.

Excepting perhaps the title-name combination, the context seems quite innocuous while the calligraphy is beautifully executed and typically early Western Chou. It is not surprising, therefore, to find rubbings of this inscription reproduced in several recent catalogues in the belief that it is genuine.^{237a}

^{237a} The inference that the vessel itself is doubtful is discussed in some detail by Barnard in connection with the study of this inscription in Volume III. (J.A.P.)



Detail of design on upper side of one handle ($\times 2$)

Chih

Shang dynasty (middle-late An-yang, 12th–11th century B.C.)

Inscription of one character inside both vessel and lid

Height, 19.4 cm. ($7\frac{5}{8}$ in.)

Width, 8.9 cm. ($3\frac{1}{2}$ in.)

Weight, 0.79 kg. (1 lb., 12 oz.)

Accession number 38.6

The vessel is divided into four horizontal bands of decoration, and the lid forms a fifth. On the neck and belly are *t'ao-t'ieh* flanked by vertical dragons while horizontal dragons are confronted on the shoulder and foot. The flanges are plain. On the lid are two more *t'ao-t'ieh*, here flanked by small horizontal dragons, and the finial knob has five scroll whorls in intaglio. All the decoration is in low relief on a smooth background, and the whole vessel is covered with a glossy, silvery green patina with some areas of malachite encrustation.



NUMBER SEVENTY-ONE (38.6)

NUMBER SEVENTY-ONE

STYLE AND CHRONOLOGY

The occurrence of *chih* of this type in Shang times is attested by two vessels found at Hou-chia-chuang which are different in decoration but closely similar in shape.²³⁸ Essentially the decor is of the type described in connection with a number of our Shang vessels. Careful comparison between this piece and the *kuei* (No. 61), for example, reveals that the disconnected elements of the *t'ao-t'ieh* are identical in form, and the only difference is that the latter vessel is largely covered with *lei-wen* while the surface of the *chih* is quite smooth. Apparently this perfectly plain surface is accounted for by the omission of one stage in the process of preparing the mold from which the bronze was to be cast. The question is discussed further in Volume II (chap. 4, sec. 2).

The elimination of *lei-wen* grounds is occasionally found in Shang times and becomes more common in early Chou. An example of the latter is Number 75. For reasons which remain to be explained *kuei* seem to have been cast in this style more frequently than other types.²³⁹

TECHNICAL OBSERVATIONS

No mold marks are discernible, but the vessel was probably cast in a two-piece mold. There is complete separation of the design elements vertically along the major axis, but there are no join lines of any kind. The underside of the bottom is plain. There are faint traces of chaplets under the bulge of the sides. The finial and stem appear to be cast as part of the lid, and a small depression in the under surface coincides with the stem juncture above. Around the inscription in the lid are vestiges of lines which indicate the inscription was originally impressed in the negative on a clay block which was inserted into the core. Thus the inscription appears to be surrounded by a slightly depressed area.

Most of the surface is covered with gray-green tin-oxide patina; but there are scattered patches of malachite and cuprite. The inside of the

²³⁸ Li Chi, *The beginnings . . .*, Pl. VIII.

²³⁹ Another Shang *chih* is illustrated by Jung, *Shang-chou . . .*, No. 571; a third is in the Metropolitan Museum, Lippe, *A Gift . . .*, p. 104 right; and a fourth in the Hakutsuru Museum, Umehara, *SKS/J*, II, 119. Jung, *op. cit.*, illustrates many early Chou *kuei* in this style: 201, 208, 209, 225, 247, 257, etc., etc.

neck is covered with a thin uniform, dark layer of malachite, a portion of which has been chipped away to reveal the inscription. Probably much of the surface was originally covered with this malachite, but it has mostly been removed by an early cleaning. The malachite cleaves easily to reveal the green-stained, tin oxide layer beneath. Scattered earthy accretions are lodged in the fossae.

In ultra-violet light about half the surface shows patches of pale yellowish fluorescence, which are areas of paint. Microscopic examination of the bluish and bright green crusty patches show the presence of characteristic spherulitic particles of Paris green and of synthetic ultramarine. This modern paint was applied, obviously, to conceal dull red patches of cuprite uncovered in the mechanical cleaning. Much of this paint was removed. There are no breaks or losses.

Composition: Samples taken from edge of foot.

Wet chemical analysis: Cu 78.8%; Sn 15.1; Pb 3.4; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Fe 0.06; Co 0.005; Ni 0.02; Bi < 0.03; Cr 0.003; Mg 0.001;

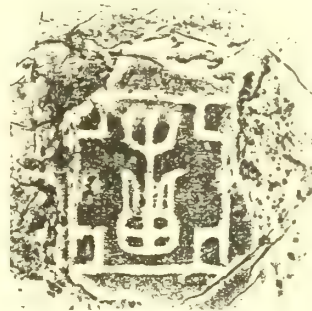
Mn < 0.001; Si 0.03.

INSCRIPTION

The single character inscription which appears in both the vessel and the lid has not yet been acceptably identified. In one other inscription it is employed as a place-name, here it functions as a clan name.



COVER



VESSEL

Chih

Early Chou dynasty (10th century B.C.)

Inscription of eight characters inside bottom

Height, 12.0 cm. ($4\frac{3}{4}$ in.)

Width, 11.0 cm. ($4\frac{3}{8}$ in.)

Weight, 0.82 kg. (1 lb., 13 oz.)

Accession number 19.6

The squat vessel with flaring lip is decorated with two bands of crested birds in relief. Around the neck they are elongated to fit into a narrow band; whereas, on the main body they assume more normal proportions. In both cases they have the heads turned back, and the crests meet in the center of each side. Dark green patination covers the whole vessel, and there are some areas of malachite encrustation and of earthy accretions.



NUMBER SEVENTY-TWO (19.6)

NUMBER SEVENTY-TWO

STYLE AND CHRONOLOGY

Chih of this shape, oblong in section and with a pronounced bulge near the base, appear to belong exclusively to the early Chou period. They are clearly related in form to *yu* vessels of the same age. A Shang predecessor may be seen in the Museum of Eastern Art, Oxford;²⁴⁰ and one that is probably to be dated earlier in the Chou dynasty than ours is in the City Art Museum, St. Louis.²⁴¹ Both have lids surmounted by capped posts. The two other related pieces cited below, closer in style and presumably in date to this one also have lids, but surmounted by the flaring oval finial more common as lid handles on Chou dynasty *yu*. We may assume that this *chih* was originally provided with a lid of this latter type.

The main motif on the body, the confronting pair of birds, has been discussed in connection with the *kuei* Numbers 69 and 70, and the reasons for dating this form of the motif to the tenth century are given there. A quite similar piece in the British Museum is assigned that date by Watson.²⁴² Another similar *chih* published by Umehara features the addition of a handle on the side.²⁴³

TECHNICAL OBSERVATIONS

No prominent mold marks are visible, but there is a vertical break in the design along the ends which indicates the vessel was cast directly in a two-piece mold. Two chaplets can be plainly seen, one under the body bulge, and the other inside the bottom; others are probably hidden by corrosion or may be fused with the metal. The underside of the bottom is plain. The surface inside and out is covered with dull-green and bluish copper corrosion products mixed with earthy residues. Scattered patches of powdery green indicate localized areas of dormant "bronze disease." Some corrosion crusts had to be removed from the inside bottom to make the inscription legible. There is no evidence of paint or repairs.

²⁴⁰ Watson, *Ancient Chinese bronzes*, Pl. 7a.

²⁴¹ Kidder, *Early Chinese bronzes . . .*, Pl. XIX, pp. 72-3. There classified as a *hu*.

²⁴² *Op. cit.*, Pl. 38.

²⁴³ *SKS/J*, II, 121. Formerly Yokota Collection, Kyoto.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 77.5%; Sn 14.2; Pb 4.3; Total 96.0.

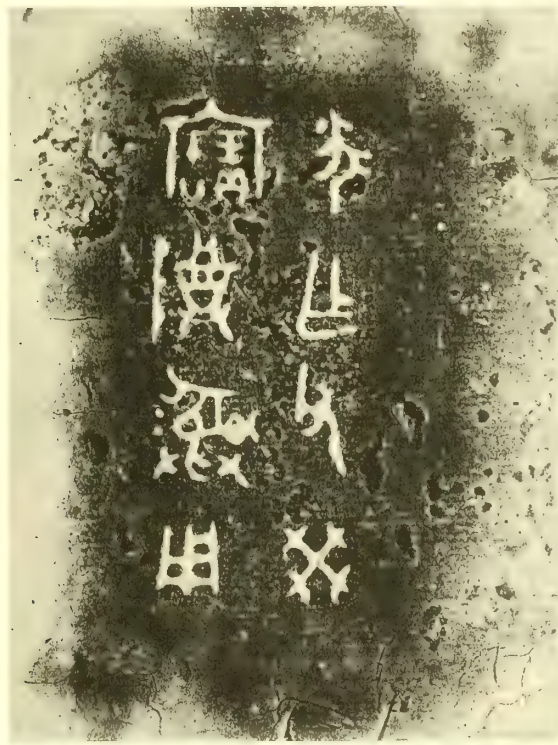
Additional elements estimated by emission spectrometry: Ag 0.09%;
Fe 0.3; Co 0.01; Ni 0.03; As 0.1; Sb 0.09; Bi 0.05; Zn 0.03; Mg
< 0.001; Si 0.005.

INSCRIPTION

The inscription appears to be cast-in and reads:

1. X made (for) Fu-kuei (this)
2. valuable and honoured *i.* Use.

The placement of *yung* "use" here, as though it were a clan sign, is unique; but it may, however, be intended to be equivalent to the phrase *yung-sheng*, a form of sacrifice.



Tsun

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of 27 characters inside bottom

Height, 20.6 cm. ($8\frac{1}{8}$ in.)

Width, 17.5 cm. ($6\frac{7}{8}$ in.)

Weight, 1.56 kg. (3 lbs., 7 oz.)

Accession number 11.40

A graceful vessel of inverted bell shape with a flaring foot. The only decoration consists of a narrow band of crested dragons centered on monster masks on the main body and a narrow band of disintegrated monocular dragons around the foot. The smooth, olive-brown patina shows considerable areas of malachite and cuprite encrustation.

According to the record this *tsun* came from the Chen Ta Whah Ling (sic) Collection of Weihsien and was sold through By Rai Sai (sic). Mr. Freer noted only that it was a “beautiful specimen from the famous Shantung collection.”



NUMBER SEVENTY-THREE (11.40)

NUMBER SEVENTY-THREE

STYLE AND CHRONOLOGY

Since the inscription on this *tsun* is identical with that on the *yu* Number 54 and the decor bands are virtually identical, there is no reason to doubt that it is contemporary with that safely datable vessel. It differs from slightly later *tsun*, such as the following piece (No. 74), in being taller and narrower. While no Shang example of this shape is known in bronze, a gray pottery goblet from An-yang is suggestively related in outline;²⁴⁴ and we may suppose that our *tsun*, dating from the very beginning of Chou, retains more of a Shang dynasty shape than do the later examples.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece, apparently in a two-piece, four-division mold, with true joins mid-way between the high relief animal heads. None of the mold lines is very obvious. The bottom has no markings. In places along the edge of the foot rim, the join between outer molds and upper core is well preserved. Two chaplets are plainly visible inside the bottom just outside the area in which the inscription is cast. The patina of irregular patches of warty malachite and cuprite is undistinguished; and there are scattered earthy residues.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 82.2%; Sn 14.8; Total 97.0.

Additional elements estimated by emission spectrometry: Pb 0.07%;

Ag 0.1; Au < 0.01; Fe 0.2; Co 0.001; Ni 0.02; As 0.2; Sb 0.05;

Bi 0.09; Mg < 0.001; Si 0.002.

The absence of lead, except for spectrographic traces, is noted.

INSCRIPTION

The inscription as in Number 54 reads:

1. In the thirteenth month, (on the day) *hsin-mao* (28),
2. The King was in Kan. (He) awarded Hsien the territory called

²⁴⁴ Watson, *Archaeology in China*, Pl. 51.

3. . . . ; awarded him cowries – five strings. Hsien responded to the King's

4. munificence, therefore made (for the lady) Chi (this) valuable *i*.

Both inscribed vessels have been known since late last century and originally were in the collection of Ch'en Chieh-ch'i.



Tsun

Early-Middle Chou dynasty (late 10th–early 9th century B.C.)

Inscription of 14 characters inside bottom

Height, 28.0 cm. (11 in.)

Width, 25.0 cm. ($9\frac{7}{8}$ in.)

Weight, 5.58 kg. (12 lbs., 5 oz.)

Accession number 54.122

In shape this vessel is a squatter version of the preceding, and now the whole surface is covered with decoration. Around the shoulder is a narrow band with pairs of elongated crested dragons centered on animal masks in high relief. Above this stands a row of rising blades decorated with very much disintegrated crested birds. The main decoration consists of two large bold *t'ao-t'ieh* again made up of disintegrated crested bird forms. The flaring base is plain. The surface is covered with an even, smooth, gray-green patina with only slight areas of encrustation.



NUMBER SEVENTY-FOUR (54.122)

NUMBER SEVENTY-FOUR

STYLE AND CHRONOLOGY

The striking motif on the body of the vessel seems to be a *t'ao-t'ieh* mask very loosely rendered in broad bands. On closer examination, however, it will be seen that although the designer clearly intended it as a *t'ao-t'ieh*, its real origin lies not in the standard Shang and Chou *t'ao-t'ieh* as we might suppose, but rather in the confronting birds we have just been discussing. On this *tsun* the motif has apparently undergone a twofold transformation: (a) dissolution into an unrecognizable pattern as seen in the rising blades on the neck; and (b) reinterpretation as a monster mask through rearrangement of the parts and the addition of eyes.

Among related *tsun*, the closest is that in the Pillsbury Collection.²⁴⁵ There the birds are fanciful elaborations of the type seen on our *yu* Number 58 though still quite recognizable. Mizuno places the Pillsbury *tsun* in the 10th century which seems a reasonable date in view of its position in the series of vessels with this motif that we have just examined. It seems later than the *yu* Number 58 as it represents an unmistakable step away from naturalistic form and toward the band-decor style of Middle Chou. On the other hand the Pillsbury birds still have a more organic and less abstract character than do those on the *kuei* Number 70 and the *chih* Number 72 which face backward and are distorted into essentially rectilinear forms with rounded corners.

Birds of the latter type are featured on the Hsiao *tsun* which Karlgren includes in a group of vessels datable by their inscriptions to the time of King Mu.²⁴⁶ While the main birds on the body of that vessel are still clearly recognizable as such, those in the rising blade patterns on the neck have lost their identity almost completely and have become mistaken for dragons, and hardly recognizable dragons at that. On our *tsun* the process of dissolution and reconstitution has progressed even further. The forms on the neck are now totally abstract spiral bands with only the general shapes and the hooks along the bottom (as "feet") surviving from the original birds. The larger birds on the body have, as

²⁴⁵ Karlgren, . . . *Pillsbury* . . . , Pls. 43 and 44.

²⁴⁶ Karlgren, *Yin and Chou* . . . , B36, Pl. XXI and p. 35.

noted at the outset, metamorphosed into *t'ao-t'ieh*; and the concave zone on the base, filled with elongated dragons on the other two pieces, is altogether plain here.

During the same period a similar transformation occurs in another common motif, the long-tailed birds that occupy the upper zones of many early Chou vessels. As noted in our discussion of the *ting* Number 33, these birds degenerate into simple S-curve bands which, if they have any function at all, now seem to be dragons rather than birds. Later, toward the end of Chou and in Han times, these same fanciful dragons can be seen to metamorphose into abstract arabesques and beyond into the beginnings of landscape where the same forms take on new significance as hills and trees. This persistence of a form through a shift in meaning, while not unknown in the arts of other countries, is a phenomenon that perhaps plays a greater part in the morphology of Chinese art than in that of any other culture.

Other *tsun* of the same type are in the University Museum at Philadelphia and in the Sumitomo Collection.²⁴⁷

TECHNICAL OBSERVATIONS

The vessel is cast in one piece in a two-piece, four-division mold. The main mold divisions separate the two principal *t'ao-t'ieh* masks. The animal heads are cast as one with the vessel, but around their edges are fine fins of metal which suggest that the heads were formed by inset molds. The underside of the bottom is rounded and cast into its surface is the familiar mesh pattern often found on bronzes of this type, but the raised lines of the mesh are a little unusual because they look as if they were smoothed down. There are four irregularly placed brackets on the inside where the bottom and foot join. An especially interesting feature of this vessel are the chaplets that are symmetrically placed high around the vessel at the quadrants between the blade decor elements. There are four more in the plain band below the animal heads and two on opposite sides in the plain band above the foot.

²⁴⁷ Umehara, *SKS/E*, I, 27; and *Senoku*, 32.

NUMBER SEVENTY-FOUR

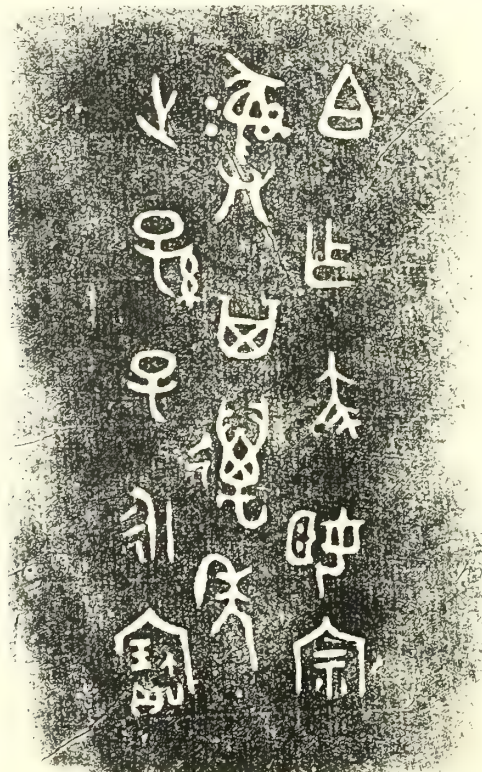
The inscription is probably cast: the strokes are deep and uniform, the edges are fairly straight, and vestiges of a block with the negative inscription set into the mold can be seen (see Vol. II, Ch. VI).

The surface is covered quite uniformly with smooth, gray-green tin-oxide patina, and there are only traces of cuprite and crusty copper minerals. No black shows in the fossae, only scattered patches of clay. There are three long, shallow depressions on the inside of the rim which appear to be scars left by a sharp blow, perhaps from an excavators pick. A small notch of metal about 1 cm. long is broken out from the edge of the foot, but there are no signs of modern repairs or touch up.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 81.3%; Sn 15.8; Pb 1.8; Total 98.9.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.6; Co 0.01; Ni 0.03; As 0.2; Sb 0.3; Bi 0.08; Cr 0.002; Mg < 0.001; Mn < 0.001; Si 0.01.



INSCRIPTION

The inscription comprising 14 characters reads:

1. Po made (for) Ts'ai-chi (the Lady of Ts'ai) (this) sacral
2. *i.* May for a myriad years
3. generations of grandsons and sons forever value (it).

The reversed *sun-tzu* phrase which should appear only in rhymed text raises serious doubts as to the authenticity of this inscription. The inscription shows, furthermore, several features characteristic of incised inscriptions. There seems little reason to doubt that it is a later addition.

Hu

Early Chou dynasty (late 11th–early 10th century B.C.)

Inscription of six characters inside both vessel and cover

Height, 24.5 cm. ($9\frac{5}{8}$ in.)

Width, 15.5 cm. ($6\frac{1}{8}$ in.)

Weight, 1.67 kg. (3 lbs., 11 oz.)

Accession number 59.14

This covered vessel has been considered a *yu* by some writers, and the suggestion has also been made that it is a *chih*. In view of its size and shape, it is here classified as a *hu* until further evidence to the contrary may be forthcoming. Both vessel and cover are decorated in smooth, rounded relief largely consisting of *t'ao-t'ieh* masks and bird forms. On the cover is an oval finial which can serve as a foot when that member is inverted. The surface is covered with a pale, greenish-gray patina of even texture, and there are a few minor areas of encrustation.



NUMBER SEVENTY-FIVE (59.14)

NUMBER SEVENTY-FIVE

STYLE AND CHRONOLOGY

The vessel has been published by Karlgren and also by Jung Keng,²⁴⁸ and both classify it as a *yu*. It does, in fact, bear a marked resemblance to such *yu* as Jung's Numbers 657 and 658 which are members of the Ch'en-ch'en set and are, therefore, datable to the early decades of Chou (see No. 41). If it was originally a *yu* it must have had handle attachments at the ends of the long axis. If, on the other hand, it is really a *hu*, it must once have had tubular lugs in somewhat similar positions, as they appear on the *hu* Number 5. As will be noted in the Technical Observations below, there was something in those places at some earlier time; but what it was and why it was removed is not clear today.

The finial on the lid, made in the form of a flaring ring somewhat elongated in section, is of a type commonly found on early Chou and Middle Chou vessels though it does not appear to have been used in Shang. Among several examples of the type in our collection is the cylindrical *yu* Number 53; and it may be worth noting that the birds on the two vessels are also closely similar; and the dragons, although different in form, are in both cases composed of the angular patterns of narrow bands with hooks projecting at intervals that we have elsewhere identified as typical of one early Chou style. Finally, the elimination of the *lei-wen* on a vessel with high relief decor is a phenomenon seen frequently on early Chou bronzes (see the *chih*, No. 71). A famous example is the monumental *yu* in the Museum of Fine Arts, Boston,²⁴⁹ usually dated the same period. The Boston *t'ao-t'ieh* has obvious affinities with this one, especially in the eyes and in the snout which features two round bosses with intaglio spirals for the nostrils.

Every significant feature here has close parallels in bronzes of early Chou date; and we, therefore, assign it to that period.

TECHNICAL OBSERVATIONS

It is not clear whether the vessel shows mold marks or not. Two faint

²⁴⁸ Karlgren, *New Studies . . .*, Pl. 17, No. 592 and Jung, *Shang chou . . .*, No. 672. The illustration in both cases is not readily recognizable as the vessel at that time had a dark and glossy surface.

²⁴⁹ Mizuno, *In shū . . .*, Pl. 88.

vertical markings on the sides of the band decorated with birds may possibly indicate some such thing. On the other hand it is impossible to say that these marks are not traces of handle attachments if indeed the vessel was a *yu*, as noted above, or the vestiges of tubular lugs if the vessel was a *hu*. Whatever was there, the traces that remain today have been carefully filed down to leave a fairly smooth and only slightly discolored surface. Two squarish holes are located at the bottom of the oval finial on the lid. On each side in the plain narrow band above the *t'ao-t'ieh* are vestiges of four chaplets symmetrically located; and four more are lower down in the center of the horns of the *t'ao-t'ieh* masks. The bottom underside has an uneven criss-cross pattern of narrow ridges. There are vestiges of chaplets there as well. The bottom also has a small repair patch with the stump of a sprue. Unusual features of the casting are the large and small bosses which form eyes of the *t'ao-t'ieh* and of the small animal figures. These are nearly all undercut and look in profile a little like rivets, although there is no sign of a rivet on the inside. The metal is deeply corroded and is probably brittle. Several cracks extend downward from the rim. Much of the copper has leached out from the surface to leave a fairly thick and uniform layer of tin oxide, and there is some cuprite. In view of the way the vessel looked in the publications mentioned above, the surface has evidently been treated chemically to induce the pale gray-green tin-oxide patina that covers it today. This is the condition in which it was offered to the Gallery in 1959. The inside of the cover directly over the inscription bears a thin layer of bright green malachite, and the inside of the bottom has some azurite. The irregular black lumps on one side near the rim are made up mostly of cuprite. The characters of the inscription have flat smooth edges like those usually seen in Chou bronzes.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 83.1%; Sn 15.1; Pb 0.1; Total 98.3.

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.02; Co 0.01; Ni 0.04; Sb 0.01; Bi 0.03; Cr 0.002; Mg < 0.001;
Si 0.01.

NUMBER SEVENTY-FIVE

The alloy is fairly rich in tin but has little more than a trace of lead.

INSCRIPTION

The inscription text comprising six characters is cast-in, both in the vessel and in the lid. It reads:

1. Po-chü made (this)
2. valuable and honoured *i*.

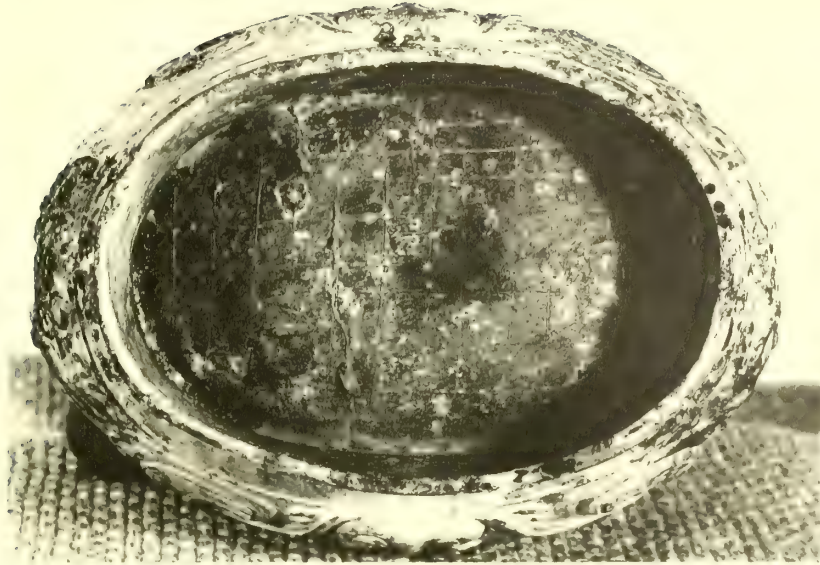
A *yu* similar in both shape and decoration is published in *Hsi-ch'ing-ku-chien* (ch. 16, 4a-b). The inscription text is the same, but the characters are differently placed; and there seems to be some difference in the size of the vessel. The first publication of rubbings of these inscriptions was in *Hsiao-chiao* (1935, 5.23a).



COVER



VESSEL



Upper: bottom view of vessel
Lower: location of lug on side

Hu

Early-middle Chou dynasty (9th century B.C.)

No inscription

Height, 48.5 cm. (19 $\frac{1}{8}$ in.)

Width, 33.3 cm. (13 $\frac{1}{8}$ in.)

Weight, 13.38 kg. (29 lbs., 8 oz.)

Accession number 13.21

A large rectangular vessel with rounded corners has two monster mask handles protruding high upon the sides. Wavy bands surround the neck without interruption, and the main body decoration on each side is a single huge *t'ao-t'ieh* made up of disintegrated dragon or bird forms executed in broad flat strokes on a ground pattern of *lei-wen*. Another wavy band surrounds the spreading foot, and the hollows in the waves are filled with unexplained decorative elements. The patina is smooth and dark green all over, but there are areas of encrustation and deep corrosion.

Mr. Freer's comment reads, "Very fine specimen of Chou bronze – strong in design and casting. The Yamanakas bought this piece directly from the late Prince Kung during 1912, brought it to New York and sold it to me through an auction held at the American Art Association galleries, on February 28, 1913."



NUMBER SEVENTY-SIX (13.21)

STYLE AND CHRONOLOGY

Although not in itself a work of any great beauty or refinement, this vessel occupies a crucial position in the historical sequence of Chou dynasty bronze styles. The main motif on the body, which preserves a minimal reference to the *t'ao-t'ieh* or animal mask, is a further degeneration of the same motif as seen on the *tsun* Number 74, which, in turn, evolved through the dissolution of confronting birds. In its present form, it is on the verge of a final break with the long tradition of zoöomorphic decor; the broad bands lose almost all trace of representational function; and it is more than a century before they regain it as individual "animals" (cf., the discussion of the *lei* No. 86). The position of this *hu* within this sequence would alone suggest the date we have assigned to it.

The "wave pattern" formed by the undulating bands in the upper zone, with chevron-like patterns resembling the "scale" markings on Shang bronzes in the intervening spaces, may be seen in different forms on vessels of the ninth century: a *ting* in the Yurinkan, Kyoto, dated by Mizuno to the reign of King Li (857–828); another with similar pattern placed slightly later by Watson;²⁵⁰ and several of the vessels found at Fu-feng-ch'i-chia Ts'un in Shensi. The Fu-feng find, dated as a group to the ninth century, includes two vessels associated by their inscriptions with the reign of King Li.²⁵¹ A *ting* in the same group is decorated with a highly abstract *t'ao-t'ieh* design clearly related to that on our *hu*. Another *t'ao-t'ieh* of similar character, although differently composed, is seen on a *ting* formerly in the possession of C. T. Loo, which, if the inscription on it is reliable, can be dated to the late ninth century.²⁵²

A characterizing feature of all those vessels is that the spaces around the design elements are filled with a shallow, crude form of *lei-wen*, sometimes reduced to simple striations instead of spirals. In the slightly later Middle Chou bronzes, these remains of the *lei-wen* disappear altogether.

²⁵⁰ Mizuno, *In shū* . . . , Pl. 116. Watson, *Ancient Chinese bronzes*, Pl. 46a.

²⁵¹ *Fu-feng-ch'i-chia ts'un ch'ing-t'ung-ch'i chün*, Pekin, 1963. The two *lei* (Pl. I and II) are considered the earliest of the group, late 10th or early 9th century B.C.; the two *hu* (Pl. III and IV) are the ones with datable inscriptions.

²⁵² Davidson, *New light* . . . , Fig. 1. The inscription is reproduced only in a crude copy. Davidson also reproduces the present *hu* and speaks of it as "closely allied to the Loo tripod."

Two similar vessels have lids, and we must assume that ours was so equipped when it was new. One is in the Hakutsuru Museum,²⁵³ the other formerly in the Manchu Imperial Household Collection.²⁵⁴ The latter is inscribed, but lacks any evidence for dating.

TECHNICAL OBSERVATIONS

The mold joins indicate that this large vessel was cast directly in a two-piece, four-division mold with the true joins running vertically through the handles. The open-core handles are precast and are secured in position over bosses which project from the vessel side in much the same way that the animal heads on *yu*, Number 50, and *tsun*, Number 16. The handles are further fastened by an irregular ribbon of hard solder which rims the joins. The rim of the vessel has a considerable overhang on the inside. At the juncture of the foot with the body and in line with the true joins, are two openings which probably mark the location of core extension spacers. A thin web of metal covers about half of the area occupied by one of the spacers. The underside of the bottom has a criss-cross pattern of irregularly spaced, raised lines; one of these continues right up to the metal web mentioned above, which partially covers a spacer opening. It is actually outside the boundary of the core of the foot which indicates that the spacer was an integral part of the core and furthermore that the criss-cross pattern was formed by scorings in the core surface. No chaplets have been observed, but corrosion crusts may hide them. There are a number of imperfections and blow holes in the casting and also several imperfections in the decor. In one side a sizable area of *lei-wen* decor is lacking.

Further study of the vessel has shown that the broad ears of the animal heads surmounting the handles are false or recently repaired. Probing at the base of each ear has disclosed the presence of a soft-solder join, and X-rays tell further that two pins (apparently metal) set in a lump of soft solder assisted in making the mends. Likewise the snout of one of the heads is joined with the aid of two horizontally placed pins.

²⁵³ Umehara, *SKS/J*, IV, 294.

²⁵⁴ Jung, *Wu ying tien . . .*, 99; also *Shang chou . . .*, No. 730.

NUMBER SEVENTY-SIX

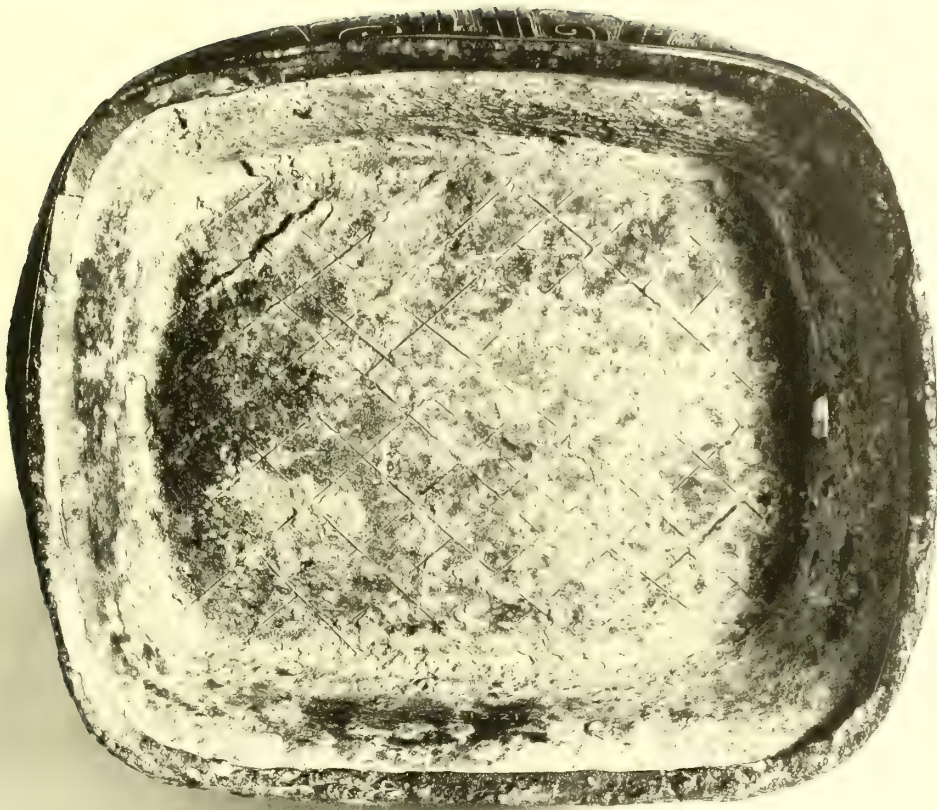
X-ray spectrographic analysis of a specimen of metal from one ear shows that it is chiefly a copper-zinc alloy with a little iron and only traces of tin and lead. The metal of the ear is thickly covered with a hard, dark-brown artificial product on which sunken decor to match the all-over design is modeled. This product which may be a sort of plastic made with lacquer is also used to build up the snouts of the animals.

The metal of the vessel in general is heavily corroded and patches of powdery green suggest that basic copper chloride salt (bronze disease) is present. Scattered earthy residues indicate the bronze was buried.

Composition: Sample taken from rim.

Wet chemical analysis: Cu 80.8%; Sn 10.8; Pb 3.9; Total 95.5.

Additional elements estimated by emission spectrometry: sample taken from edge of foot: Ag 0.2%; Fe 1.0; Co 0.01; Ni 0.02; As 0.05; Sb 0.03; Bi 0.03; Zn 0.03; Al 0.002; Mg <0.001; Mn <0.001; Si 0.02.



Detail of inside of bottom

Kuei

Middle Chou dynasty (9th century B.C.)

Inscription of 35 characters inside both bottom and lid

Height, 25.0 cm. ($9\frac{7}{8}$ in.)

Width, 37.2 cm. ($14\frac{5}{8}$ in.)

Weight, 6.86 kg. (15 lbs., 2 oz.)

Accession number 60.19

This and the following five *kuei* represent a group that is generally recognized as middle Chou in form and decoration, a group that marks the penultimate stage in the evolution of the *kuei* as a vessel type among Chinese ceremonial bronzes. Typically the body is squat in shape and raised slightly off the ground on three short legs topped by tiger masks. On top of the lid is a broad flaring circular finial which can serve as a foot when the cover is removed and inverted. As in earlier times, the handles spring from monster masks; but these now display great imaginative variety and are often far removed from the traditional "bird in the animal's mouth" of earlier times. Characteristic decoration consists of broad horizontal fluting, mostly around the lower part of the body and the upper lid, though sometimes it covers the whole vessel. In most cases, however, the rim of the lid and body, and the flaring base, are bordered with one version or another of the scale band, the vertical scales or the broad figured band of Karlgren's repertory.²⁵⁵ Chronologically the type seems to range from the ninth century down to the seventh; and some of the details to be noticed are described in connection with the vessels that follow. The final phase of the evolution of the *kuei* is not represented in this collection; but several examples of the types from the fifth century have been published.²⁵⁶

²⁵⁵ Karlgren, *Yin and Chou . . .*, pp. 118–119.

²⁵⁶ E.g. Watson, *Ancient Chinese bronzes*, Pl. 57a.



NUMBER SEVENTY-SEVEN (60.19)

NUMBER SEVENTY-SEVEN

The decoration of the present *kuei* features broad bands of monocular zoomorphs around the top of the body and the rim of the lid; stylized scrolls of the “broad figured band” group surround the flaring base. Inside the circular finial on top is a monocular beast arranged in a tight reversed-S shape to fit the available field (*fig. 44*). The monster heads on the handles have spiral horns, and the lip and snout turn up in an elaborate curl.



FIGURE 44

STYLE AND CHRONOLOGY

A number of recently excavated bronzes help to shed some light on the problem of chronology, and all the evidence seems to suggest the ninth century as the period when this style flourished. Perhaps the most important document is a vessel of this same type, the *Mi-shu kuei*, excavated in 1959 with 15 other pieces at Ssu-po-ts'un, near Lan-t'ien in Shensi Province.²⁵⁷ On the basis of the inscriptions, most authorities assign this group to late Western Chou.²⁵⁸ Judging from the rather poor published photographs, the piece is very like ours in both shape and

²⁵⁷ *Wen-wu* . . . , 1960, No. 2, p. 7, lower right.

²⁵⁸ Higuchi, *Newly discovered Western Chou bronzes*, pp. 40–43. Cheng, *Archaeology in China*, III, p. 228, dates them all in 811 B.C. without giving any explanation.

decoration. Another closely related example is the Chi-po *kuei*; and, according to Kuo Mo-jo, the maker of the bronze was enfeoffed during the reign of King Li.²⁵⁹ Further parallels are found among the several *kuei* excavated at Fu-feng-ch'i-chia Ts'un in Shensi Province, in a group also dated to the ninth century by inscriptions on some of the pieces.²⁶⁰ Although not an excavated piece, one more *kuei* may be mentioned as closely related; this is the Sung *kuei*, now in the Nelson Gallery at Kansas City, also part of a group generally accepted as ninth century.²⁶¹

The monocular zoomorphs in the band surrounding the lid and the body, though usually called "dragons," or mistaken for the remains of dissolved *t'ao-t'ieh*,²⁶² are probably derived from the bird forms commonly found in earlier times.²⁶³ The intermediate stages in this development, from recognizable bird to abstract S-shape, can easily be traced on Western Chou vessels. A good example of the intermediate stage is on the Chung *kuei* where the crests and tails of the birds are still evident while in other respects the forms are only a short step removed from those on our vessel.²⁶⁴

TECHNICAL OBSERVATIONS

Both vessel and lid seem to have been cast directly in a two-piece, four-division mold. The true joins are in line with the handles. One pre-assembly join is to the right of the leg centered between the handles and the other is opposite which seems to be normal in this type of vessel. The handles, which are cast as one with the vessel, have open channels which are still filled with original clay core. Mold marks show plainly on the inside edges of the handle lobes. Under the handles the horizontal fluting is off register indicating that the core extensions from the handles were not properly placed. There are vestiges of chaplets under the body bulge and in the irregular fluting under one handle, but none are visible on the

²⁵⁹ *Wen-wu*, 1962, No. 10, p. 58.

²⁶⁰ *Fu-feng* . . . , Pl. X, XI, XVI-XIX.

²⁶¹ Watson, *Ancient Chinese bronzes*, Pl. 48b, and pp. 54-5.

²⁶² E.g. by Higuchi, *op. cit.*, p. 43.

²⁶³ Watson, *op. cit.*, p. 53.

²⁶⁴ Ch'en, *Hsi-chou* . . . , Pt. II, Pl. 1 bottom; rubbing of design on p. 100.

NUMBER SEVENTY-SEVEN

inside. The underside of the bottom bears ridges, not in the usual square mesh or criss-cross pattern, but as concentric right angles in each quadrant.

The three legs are of special interest because they evidently served as sprues or pouring gates in the casting operation. The evidence is in the shallow depression on the underside of the leg which shows the metal apparently was poured (mold upside down) to the exact level of the present bottom of the legs and the depressions were formed when the metal shrank on cooling. The backs of the legs extend to form V-shaped buttresses along the inside walls of the foot.

The lid is bisected by mold-join traces. There is faint evidence of chaplets around the fluting. The flaring lip of the finial has a marked over-hang of about 1 cm. on its inner edge.

An inscription of 36 characters is present in both the vessel and the lid. In view of Barnard's doubts about the authenticity of the inscription the characters were examined with special care with all the facilities of the laboratory. There is no evidence of any kind that they were incised into the cold bronze. A noteworthy feature is the extent of undercutting both in some of the inscription characters and in some of the decoration, and the wavy edges of some of the strokes; this suggests etching, and the dendritic structure of the bottoms of the character grooves and intersections of the grooves with chaplets tends to confirm this suggestion. Therefore, the inscription may be later than the bronze, even though the characters have a cast appearance on first inspection.

The smooth, gray-green tin-oxide patina of the surface enhances the bronze greatly. There are hardly any crusty green and blue copper mineral products. Very conspicuous, however, is the large red patch of cuprite that mostly covers the animal head on one handle and a lesser patch on the vessel side. This cuprite does not seem to have been exposed by mechanical cleaning but might have been uncovered with acid cleaning. In places the intaglio is filled with earthy deposits, some of it blackened by carbonaceous residues. The condition of the piece is excellent. There are no breaks or losses, and no evidence of repairs or paint touch-up.

Composition : Sample taken from foot rim.

Wet chemical analysis : Cu 81.2%; Sn 14.0; Pb 1.4; Total 96.6.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Au <0.01; Fe 0.2; Co 0.03; Ni 0.02; As <0.1; Sb 0.01; Bi 0.2;

Cr <0.001; Al 0.002; Mg <0.001; Mn <0.001; Si 0.04.

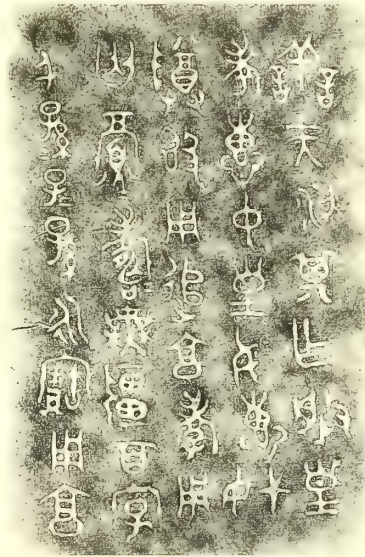
INSCRIPTION

An inscription text comprising 36 characters incorporated in both vessel and lid. The inscription is spurious. The following translation is offered:

1. (i), Shan-fu-liang-ch'i, made (for) my august
2. deceased father, Hui-chung, and august deceased mother, Hui-i, (this)
3. honoured *kuei* to be employed in offerings commemorative of filial piety,
4. to be employed in prayers for a vigorous old age – an old age without limit. A hundred births (!) and
5. a thousand grandsons – sons and grandsons – forever value and employ (it) in sacrifice.



COVER



VESSEL

Kuei

Recent

Inscription of 84 characters in both vessel and cover

Height, 25.0 cm. ($9\frac{7}{8}$ in.)

Width, 35.5 cm. (14 in.)

Weight, 6.12 kg. (13 lbs., 8 oz.)

Accession number 09.259

As the above dimensions show, this *kuei* is very much like the preceding in size and shape. The main difference is in the decoration for here all three zones are covered with the "scale band"; and it may be worthy of note that from the top down, the three bands have the scales set in alternating directions. The monster heads on the handles are like the preceding with the addition of a curious T-shaped protruberance standing in the middle of the forehead where the horns join. The sides of the handles are also covered with scales. The flat circular area inside the finial is plain.



NUMBER SEVENTY-EIGHT (09.259)

NUMBER SEVENTY-EIGHT

STYLE AND CHRONOLOGY

The maker of our *kuei* evidently copied one like the Han-huang-fu *kuei* now in the Tenri Museum at Nara.²⁶⁵ The only noticeable difference is in the scale band on the lid which runs in the same direction as its neighbor on the rim of the vessel instead of matching the direction of the band on the foot as does ours. The Tenri *kuei* carries an inscription which states, *inter alia*, that the vessel was part of the dowry of the daughter of a certain Huang-fu when she married one of the Chou rulers, probably King Li. Mizuno accordingly dates the vessel to that reign (857–828). The three Shih-yu *kuei*, dated by Kuo Mo-jo to the reign of King I (907–898) some four decades earlier,²⁶⁶ are also very similar to ours; and another closely related example is in the Sumitomo Collection.²⁶⁷

TECHNICAL OBSERVATIONS

The vessel appears to be cast in one piece in a four-piece, six-division mold. The joins are indicated by breaks in the design about 7 cm. right and left of each handle. In addition, there appear to be pre-assembly joins vertically along the major axis in line with the handles. These are cast as one with the vessel and are channeled inside and filled with original clay core except at top of one handle where the core is partly dug out and now reveals the inside of the handle-vessel contact. There are no vertical mold marks on either side of the handle joins; but there are webs of metal under the handles at the points where they join the body; and these seem to indicate the location of mold joins. Each dragon head on the handles has a T-shaped protruberance between the eyes which is cast full round with no sign of mold joins. The vertical ridges above each leg on the inside of the foot may be mold marks. The bottom of each leg is quite flat and without ridges, and there are no criss-cross lines or brackets under the vessel. The foot rim is flat, about 6 mm. wide, slopes inward and overhangs about 2 mm. on its inner edge. The lid is quite plain, and there are no holes at the base of the finial. There is no evidence of chap-lets on either vessel or lid.

²⁶⁵ Mizuno, *In shū* . . . , Pl. 118; reproduction and discussion of the inscription, pp. 26–27.

²⁶⁶ Kuo Mo-jo, *Liang chou* . . . , t'u-lu, 93–95, k'ao-shih, p. 88b.

²⁶⁷ Sumitomo, *Sen-oku* . . . , No. 104.

The simple sunken decor is poorly executed; the lines have ragged edges, and the shallow grooves are uneven in depth. The inscriptions on both vessel and the lid are cast, but the quality is poor.

The surface of the vessel is thinly and fairly uniformly covered with smooth malachite, dull green in tone. There are no breaks or repairs.

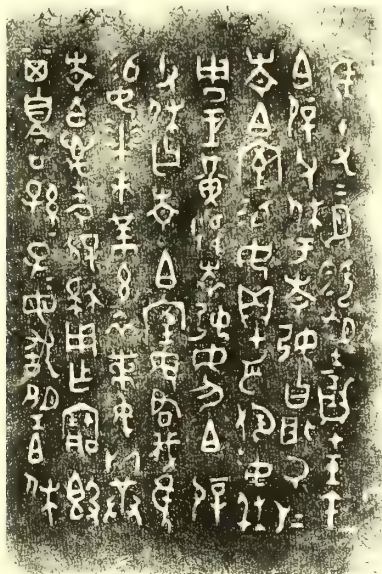
Composition: Sample taken from underside of one leg.

Wet chemical analysis: Cu 71.9%; Sn 7.9; Pb 17.3; Total 97.1.

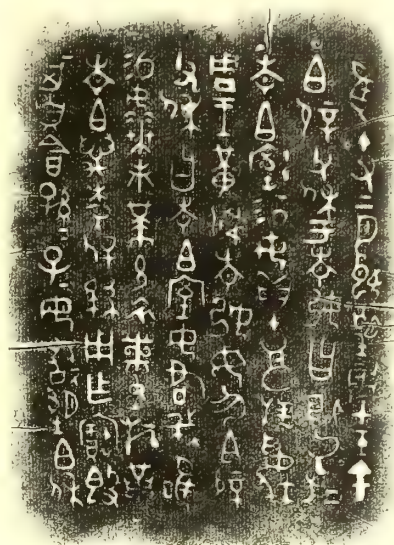
Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.01; Co 0.005; Ni 0.02; As 0.07; Sb 0.07; Bi 0.2; Mg < 0.001.

INSCRIPTION



VESSEL



COVER

The inscriptions in both the lid and the vessel are very poor and inaccurate reproductions of a series of earlier published prototypes – all with the reversed *sun-tzu* phrase, incorrect character usage, highly questionable calligraphy and several instances of inconstancy of character structures. Our inscriptions with line-drawings of the vessel and lid have been published in *Liang-lei* (1872, 6.19a). Both Kuo Mo-jo and Jung Keng have declared the set to be spurious. A literal rendering of the inscription will illustrate the faulty composition:

NUMBER SEVENTY-EIGHT

1. In the 12th month, the third quarter of the month, the day being *jen-wu*, Po-hsin-
2. fu bestowed grace upon Hsien-kai, and stated Tsa! Your assistance. Hsien-po
3. House. Award you a wife (?), a *chüeh*, Use. King.
4. Yellow. . . . Hsien-kai hastened to extol Po-hsin-fu's grace and said:
5. Grace Po Hsien Po House. Award. Lord. I.
6. (particle). Award. Longevity. I am unable not to, with Hsien-po,
7. a myriad years protect. Hence presume to record (?) in (this) *i* stating:
8. May from today grandsons and sons. Do not dare to forget Po's grace.



Detail of bottom

Kuei

Recent

Inscription of 16 characters inside both vessel and cover

Height, 22.2 cm. ($8\frac{3}{4}$ in.)Width, 33.5 cm. ($13\frac{1}{4}$ in.)

Weight, 5.13 kg. (11 lbs., 5 oz.)

Accession number 11.49

This *kuei* is somewhat smaller than the two preceding; and again the decoration varies. The bands of monoculi on the lid and body resemble those on Number 77, but here they are interrupted in the center by highly stylized monster masks somewhat resembling escutcheons. Around the base is a band of vertical scales. The monster heads on the handles are much more elaborately conceived with horns that look like bushy eyebrows, ears, and, behind these, two completely non-functional, fan-shaped members rising parallel above and behind the head. Between these a single low horn-like protruberance lies along the top of the neck. The character of the circular finial too is quite different. Instead of having a slightly inward-sloping flat surface on top with an overhang on the inner edge, it is quite smooth and like a flaring funnel on the inside while the overhang on the outer edge is hollow underneath thus completely reversing the usual form. The dark-brown, metallic patina has many areas of malachite and cuprite encrustation.

The piece was called Chou by Riu Cheng Chai of Peking who sold it, and Mr. Freer pronounced it a "Genuine Chou specimen."



NUMBER SEVENTY-NINE (11.49)

NUMBER SEVENTY-NINE

STYLE AND CHRONOLOGY

The copyist who made this late imitation of a Middle Chou bronze must have had in mind a model like the Shih-chia *kuei*, the Chi-po *kuei*, the Sung *kuei*, and others mentioned in connection with the two preceding vessels. The really striking difference is in the treatment of the circular finial on top which is constructed in an entirely different way. Among published *kuei* only one seems to have a finial of the same proportions, and in that case we are informed that the whole lid is a replacement carved of wood.²⁶⁸

TECHNICAL OBSERVATIONS

The two members, vessel and cover, are each cast in a single piece, but there are no visible mold marks, even around the handle where they are usually found on early vessels of this type. The handles, moreover, are not channeled and open on the inside as in the early *kuei* types. A drilling made into the under side of one handle shows it is not solid but tubular with walls about 2 mm. thick and that the interior is filled with a blackish substance which under the microscope seems to be a mixture of fine clay and carbon black. The underside of the bottom bears a criss-cross pattern in relief, but the diamond meshes are uniform in size and shape, not irregular and casual as in the early pieces. The vessel is unique among the *kuei* of this type because the legs do not extend down the inner side of the foot. There are no brackets. There are also no holes in the side of the foot or in the side of the finial on the cover. No sign of chaplets can be seen inside or out. All the evidence suggests that the vessel is a late imitation and that it was not cast by the traditional piece-mold method.

An inscription of 16 characters is cast in both the bottom of the vessel and the lid; but because of some technical failure, the impression is very uneven and several of the characters are just barely legible. Another notable feature is that the inscription text in the lid is exactly reversed, a mirror image of that in the vessel. In the lid especially some of the characters are shallow, uneven in depth, and incomplete.

268. Karlgren, *Yin and Chou . . .*, C80 on Pl. XXXVIII.

The surface of the vessel is smooth but irregularly mottled with cuprite and malachite and occasional patches of redeposited copper, and it has the appearance of having been ground and polished. The inside surface of the vessel, however, bears much warty and crusty malachite. There are no earthy residues; and the bronze bears no evidence of having ever been buried in the earth.

Composition: Sample taken from underside of one leg.

Wet chemical analysis: Cu 68.4%; Sn 5.9; Pb 22.0; Zn 1.5; Total 97.8.
Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.09; Co 0.003; Ni 0.2; As 0.3; Sb 0.5; Bi 0.03.

The high lead content and the presence of zinc in the alloy are noteworthy.

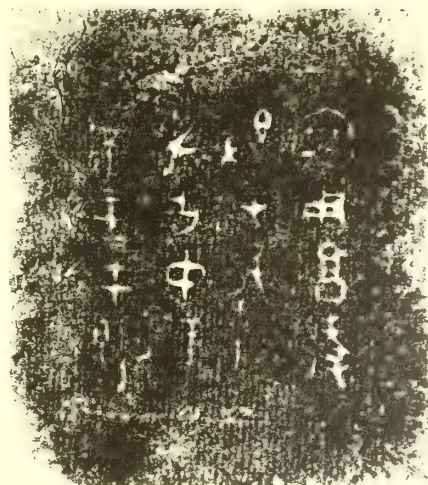
INSCRIPTION

This inscription which is cast-in with rather poor register has been a great favorite with forgers. It was first published in the Sung period and since then more than a score of copies are recorded. It reads:

1. Lu-p'ang Ching-chü-
2. fu made (for) Chung-chiang
3. (this) *kuei*. Sons and grandsons forever
4. value and use (it in the) sacrifices and in filial reverence.



VESSEL



COVER

Kuei

Recent

Inscription of 12 characters inside base

Height, 17.9 cm. (7 in.)

Width, 36.2 cm. (14 $\frac{1}{4}$ in.)

Weight, 5.73 kg. (12 lbs., 10 oz.)

Accession number 11.54

Lacking its cover, this vessel is essentially like the last three but an even poorer imitation of the real thing. The convex "fluting" of the body is perhaps the most striking feature. On the surface is a coating of glossy cuprite encrustation which has evidently been polished. Mr. Freer got the piece from Lee Van Ching and considered it Chou.



NUMBER EIGHTY (11.54)

NUMBER EIGHTY

STYLE AND CHRONOLOGY

Only minor details of shape and decoration distinguish this piece from those mentioned above. The general form is somewhat squatter, the handles are simpler, and the casting is less sharp. The decoration of the shoulder is a less common variant of the "broad figured band"; here each unit or "animal" consists of a pair of horizontal C-shapes reversed and interlocked with a single eye enclosed by the locking "tails" of each pair. Although rare, it may be observed in a few published examples.²⁶⁹

The most striking feature to be noted is the treatment of the horizontal "fluting" that surrounds the body. In every case we have seen, and in almost all published examples, this is true "fluting"; that is, concave in profile. Here the reverse is true, and this is one of those rare examples where the horizontal bands are convex in section. A cursory check of a few of the major Chinese catalogues (*Po-ku-t'u-lu*, *K'ao-ku-t'u*, *Hsi-ch'ing-ku-chien-i-pien*, *Ning-shou-chien-ku*, *Shan-chai-chi-chin-lu*) reveals something over 100 *kuei* with this decoration, and only five with convex bands. In some cases the drawing is so poor that the artist's intention is not clear. Among the published examples of this rare type is the vessel which must have served as a model for the maker of our *kuei*. The wood-block illustration in the *Shih-liu-ch'ang-lo-t'ang-ku-ch'i-k'uan-shih-k'ao* the catalogue of the collection of Ch'ien Tien published in 1796,²⁷⁰ shows the vessel with a lid. As noted below by Barnard, the inscription text is the same. Either our bronze was made in imitation of that in Mr. Ch'ien's catalogue sometime after the book was published, or Mr. Ch'ien himself was the victim of a forger of his own time and owned this very *kuei*. In either case the lid has been lost in the intervening years.

TECHNICAL OBSERVATIONS

The vessel, including handles, is cast in a single piece. Vertical join traces in the quadrants indicate a two-piece, four-division mold with the true joins showing plainly on either side of the joins of the handles and on the lower edge of the handle lobes. The handles, which are channeled on the

²⁶⁹ Karlgren, *and Chou Yin . . .*, C143, Pl. XLIX.

²⁷⁰ Ch. 2.6.

inside and filled with original clay core, also bear a center join line; but there are no division lines across the horns and forehead of the animal head. The three short legs extend upward on the inside of the foot in the form of a V-shaped buttress, and each shows vertical mold marks along the edge and across the bottom. No criss-cross lines show on the bottom nor were chaplets observed; if present, they are hidden by corrosion. Most characters of the inscription are well cast, clean and deep. Two of them are partially obscured by green corrosion crusts.

The reddish tone of the surface is caused by much cuprite, and there are scattered knobby patches of malachite. There are no breaks, losses or evidences of repair.

Composition: Sample taken from edge of base (foot).

Wet chemical analysis: Cu 85.6%; Sn 11.0; Pb 0.2; Total 96.8.

Additional elements estimated by emission spectrometry: Ag 0.09%; Fe 0.3; Co 0.01; Ni 0.02; Bi 0.2; Zn 0.03; Mg < 0.001; Si 0.02.

INSCRIPTION

The inscription reads:

1. Hsi-chung made (this) valuable
2. *kuei*. May for a myriad years
3. sons and grandsons forever value and use (it).

This text is incorporated in eight different vessels or vessel+lid sets; all are probably spurious. Even Juan Yuan had doubts in regard to the earliest in the series, the lid inscription in particular (*Chi-ku-chai* 6.5b).



Kuei

Middle Chou dynasty (7th century B.C.)

No inscription

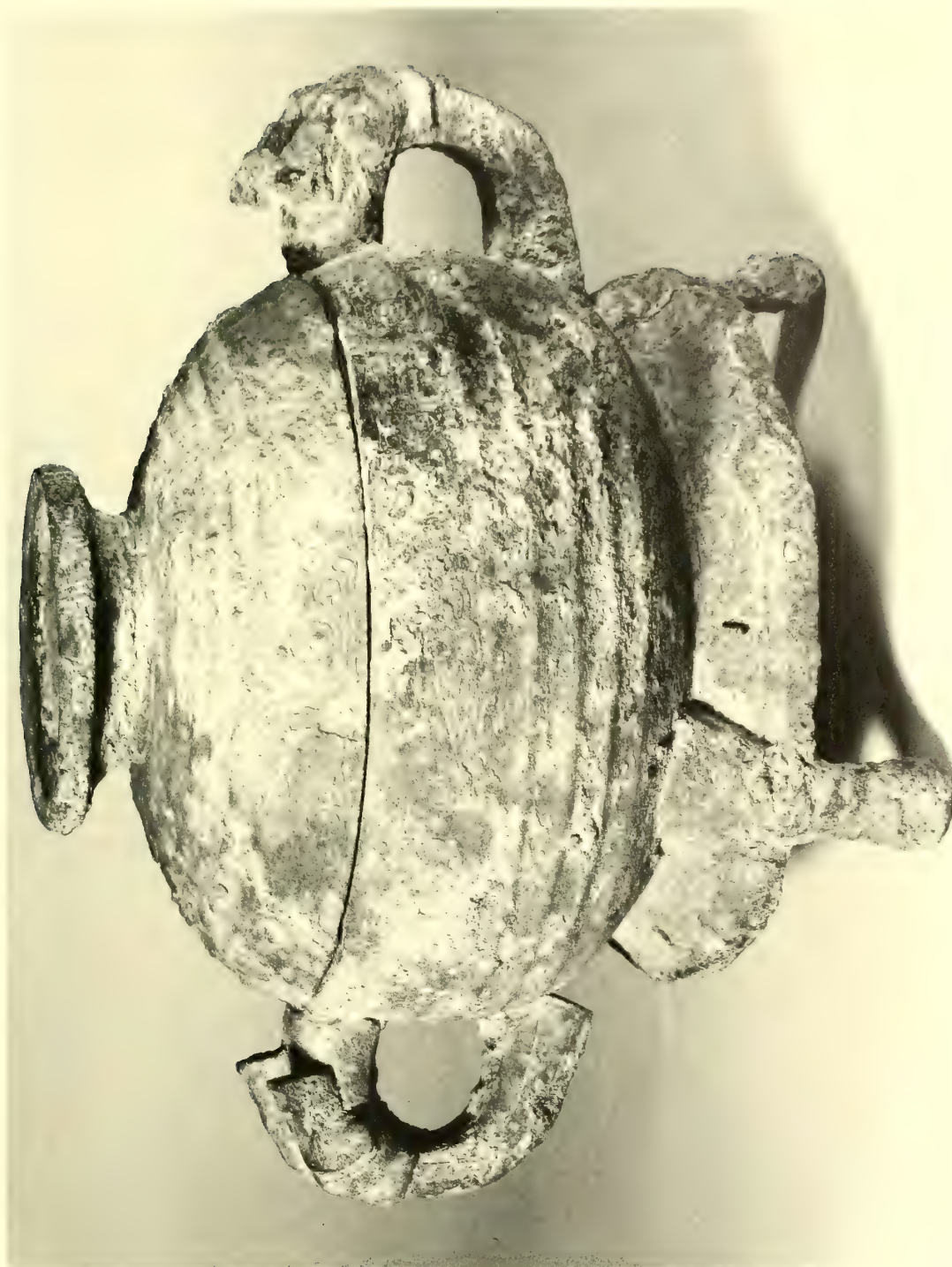
Height, 27.2 cm. ($10\frac{3}{4}$ in.)

Width, 40.4 cm. ($15\frac{7}{8}$ in.)

Weight, 6.63 kg. (14 lbs., 10 oz.)

Accession number 24.11

This again is a standard Middle Chou *kuei* in both shape and decoration. The quality is indifferent, and the whole thing is so heavily covered with encrustation and earthy accretions that the surface is hardly visible. One of the three legs has been broken off. Carl Whiting Bishop acquired the piece while he was engaged in field work in China in 1924. On his return it was placed in the study collection; and Mr. Wenley added it to the Freer collection in the 1950's giving it a 1924 accession number retroactively.



NUMBER EIGHTY-ONE (24.11)

NUMBER EIGHTY-ONE

STYLE AND CHRONOLOGY

Among the closest parallels to this *kuei* are some of those excavated at Hsin-cheng Hsien, Honan.²⁷¹ Unfortunately that find provided no reliable clues to dating; and the range seems to extend from the eighth century down to the sixth or even the fifth century. The *kuei* are evidently from the earlier part of this long span, perhaps some time in the eighth or seventh century. Especially noteworthy is the treatment of the monster masks that top the handles; unlike any of the previous examples these have three rather heavy flange-like members sloping upward and back from the forehead in lieu of horns. The sides of these are decorated with conventional spirals in the broad Middle Chou manner. Inside the bottom of the circular finial is a coiled serpent surrounded by a scale band. Most of the decor is badly obscured by heavy corrosion, but where it is visible it seems closely related to that on the above mentioned Hsin-cheng pieces and also to that on the seventh century vessels from Shang-ts'un-ling.²⁷² It consists of longitudinally divided bands bent to form "animals," each with an eye in its center.

TECHNICAL OBSERVATIONS

The vessel was made by direct casting in a piece mold, but it is not clear if the usual formula, two-piece, four-division mold assembly, is applicable. In spite of corrosion, four join traces are discernible on the lower part of the vessel; but none of the joins coincide with the zoomorphic legs which are cast with the vessel and which continue on as thickenings on the inside of the foot rim wall. The reason may be that, as on most vessels of this type, the handles are not cast in but are fixed to the vessel with hard solder; hence, they could have been located in any position. This hard solder forms a ribbon or shoulder of metal around each join and shows a distinct seam on either side. Because the condition of the vessel makes it unsuitable for exhibition, the nature of the solder join was carefully explored. Where the lower part of one of the handles was

²⁷¹ Sun Hai-p'ao, *Hsin-cheng-i-ch'i*, Pls. 69-78 show a number of *kuei*, of closely related types, and rubbings of some of the details including the monster heads and the coiled serpent which is identical with ours.

²⁷² *Shang-ts'un-ling* . . . , e.g. Pls. XXIV, 3; XXXIX, 1-2; LI, 3; LVI, 3; LXI, 3; etc.

separated from the body a transverse cut was made with a saw to produce a wedge-shaped section which could be lifted out and examined. This revealed that the handle is hollow with walls about 2 mm. thick and that the interior is still filled with original clay core. It also showed that the hard solder has run on to the inside of the handle where it makes contact with the core. The hard solder is a distinct alloy; when polished, it can be seen with the naked eye that it is quite heterogeneous in structure. Analysis shows Cu 60.4%; Sn 22.9; Pb 9.4; Total 92.7. It seems to contain much cuprite. The high tin content gives the solder a melting point considerably lower than the handle and vessel alloys which have higher copper content. At this point there is a distinct line between the handle metal and the hard solder and no sign of melting or fusion; and this may account for the separation here. Higher up, however, the handle seems to be firmly joined. (See Vol. II, Chs. IV and V.)

The underside of the bottom is plain and without criss-cross marks. There is no evidence of chaplets, but they may be concealed under the crusts. There appears to be a mold join between the lower core and outer molds in the form of a slight shelf around the inside edge of the vessel lip.

The vessel is heavily encrusted inside and out with green corrosion crusts bearing some atacamite and entangled with dull yellowish earthy residues. The interior surface also has crystalline deposits of azurite and cerussite. The corrosion crusts cleave easily to reveal the decor design in sharp detail beneath. One of the short legs is missing, apparently broken off from deep corrosion and lost.

Composition: Sample taken from rim.

Wet chemical analysis: Cu 65.8%; Sn 7.2; Pb 22.8; Total 95.8.

Sample taken from one handle: Cu 76.4%; Sn 8.0; Pb 12.4; Total 96.8.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.09; Co 0.01; Ni 0.03; As 0.2; Sb 0.1; Mg 0.001; Mn < 0.001; Si 0.1.

P'an

Middle Chou dynasty (7th century B.C.)

No inscription

Height, 15.0 cm. ($5\frac{7}{8}$ in.)

Width, 42.3 cm. ($16\frac{5}{8}$ in.)

Weight, 5.19 kg. (11 lbs., 7 oz.)

Accession number 11.35

The broad shallow basin has two loop handles attached to the side and turning upwards to rise above the rim. Underneath the lip outside is a crudely cast broad figured band. Around the flaring foot is a band of vertical scales; but these are almost invisible as the vessel is heavily encrusted all over with malachite, azurite, and earthy accretions.

The piece was purchased, according to the record, "from Pong, China." Mr. Freer's comment was, "Very fine in form, color, and condition. Genuine Shang specimen according to Mr. Pong."



NUMBER EIGHTY-TWO (11.35)

NUMBER EIGHTY-TWO

STYLE AND CHRONOLOGY

An earlier version of this shape is the Shou-kung *p'an*, which both Kuo Mo-jo and Ch'en Meng-chia date to the latter part of the 10th century.²⁷³ The footring in that case, however, is straight like the feet of typical Shang and early Chou *p'an*;²⁷⁴ the pronounced outward curve in the outline of the foot appears only in Middle Chou and later examples.²⁷⁵ The shape of ours is paralleled closely in three *p'an* from Shang-ts'un-ling,²⁷⁶ one of which, however, has short block-like projections downward from the footring, functioning as feet. A similar vessel with practically the same two bands of decor but with more elaborate feet, is in the Royal Ontario Museum, Toronto.²⁷⁷ In connection with other vessels of the group, we have already discussed the reasons for assigning pieces with this kind of decor to the seventh century, and the parallels in shape among the Shang-ts'un-ling finds bear out this dating.

TECHNICAL OBSERVATIONS

The vessel was cast in one piece, and vestiges of mold marks pass vertically across rim and foot about 10 cm. to the left of each handle. The handles, which are solid, are engaged not only to the sides of the bowl but also to the rim by two short bars or links. The casting, especially around the handles, is quite crude and has left some rough flash protruding from the mold joins. Analysis of a sample of the handle metal shows: Cu 69.0%; Sn 7.8; Pb 20.1; Total 96.9. Since the handles and body are cast as one, the difference in composition is probably caused by differences in corrosion penetration and lead segregation in the areas sampled. On the underside of the bottom is a diamond-shaped criss-cross pattern of irregularly spaced lines on which is superimposed, in the center, a low ridge of metal about 5 cm. long, probably a cut-off sprue.

²⁷³ Ch'en Mêng-chia, *Hsi-chou* . . . , VI, pp. 114–115 and Pl. 3. Kuo dates it on evidence in the inscription to the time of King I (907–898 B.C.); Ch'en believes it might be from the preceding reign of King Kung (927–908).

²⁷⁴ E.g. Jung, *Shang chou* . . . , No. 831.

²⁷⁵ Cf. Mizuno, *In shū* . . . , typological chart.

²⁷⁶ *Shang-ts'un-ling* . . . , Pl. XVII, No. 5, Pl. XLV, No. 3, Pl. LIV, No. 3.

²⁷⁷ Umehara, *SKS/J*, II, 153.

Also, near the edge of the bottom on both sides there is a crude repair patch, apparently to fill a casting flaw. One patch on the underside has a short stem which may also be a stump of the sprue used to pour the metal for the mend. No chaplets were observed but they could be hidden by corrosion.

The surface is encrusted with dull green malachite mixed with some azurite; there is a considerable amount of earthy residue testifying to burial. The corrosion crusts cleave easily to reveal a smooth tin-oxide surface beneath. The only blemish is a horizontal break about 6 cm. long on one side with corresponding dent on the outside which may have been caused by an excavator's pick.

Composition: Sample for analysis taken from edge of foot.

Wet chemical analysis: Cu 71.6%; Sn 8.7; Pb 15.0; Total 95.3.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.3; Co 0.01; Ni 0.02; As 0.2; Sb 0.2; Bi 0.05; Si 0.001.

Lei

Middle Chou dynasty (9th century B.C.)

No inscription

Height, 29.9 cm. (11 $\frac{3}{4}$ in.)

Width, 31.1 cm. (12 $\frac{1}{4}$ in.)

Weight, 6.24 kg. (13 lbs., 12 oz.)

Accession number 15.104

The whole surface of the vessel is covered with horizontal zones decorated in the bold style of the middle Chou with broad flat bands including S-curves, wavy bands, etc., and around the bottom are a series of hanging blades. Two ring handles stand erect on the shoulder and are topped with monster masks with bottle horns. The dark brownish patina is extensively covered with malachite encrustation and some areas of earthy accretions.

The vessel was bought from Lai-yuan and Company of New York, and Mr. Freer's original notes read thus: "Fine. Early Chou and displaying unusual design and patina – even its repairs are interesting, i.e., light yellowish toned composition filled in small openings."



NUMBER EIGHTY-THREE (15.104)

NUMBER EIGHTY-THREE

STYLE AND CHRONOLOGY

Some of the evidence for assigning vessels with the “wave pattern” in broad bands to the late Western Chou period has already been cited in the discussion of the *hu* Number 76. The designs on the two tripods mentioned there, the Shan-fu-k’o *ting* and the Ts’e-jui-kung *ting*, are especially close to the design in the principal zone of the present *lei*. The former is datable by inscription to the time of King Li; the latter is dated by Watson to the late ninth century.²⁷⁸ A third example with this design datable to the same period is the Yü *ting*, which bears an inscription of 205 characters mentioning two people contemporaneous with Li.²⁷⁹

Preceding this *lei* in a typological sequence would be the *lei* found at P’u-tu-ts’un in Shensi.²⁸⁰ The find is generally datable, by an inscription in one of the vessels, to the mid-10th century. That *lei* retains from earlier Chou styles the raised “string” markings on the neck, a flaring foot, and whorl-circles in the shoulder band. The loop handles are larger, and have rings pendent from them. In the stage represented by our *lei*, the handles are smaller and in the form of simple rings surmounted by the spiral-horned bovine masks common on *kuei* handles in the same period. There is a more pronounced break in the outline of the body between the shoulder and the lower portion, and the spreading foot has disappeared.

TECHNICAL OBSERVATIONS

The vessel was cast in a piece mold, but the vertical mold marks at the quarters have been mostly removed in the finishing operation. A mold mark runs around the inside of each of the ring handles which seem to be cast as on integral parts of the vessel.

The surface is mostly covered with dull corrosion crusts containing much malachite and some cerussite. Tin oxide also seems to be an

²⁷⁸ It is apparently the same as the Jui-kung *ting*; see *Ku-kung t’ung-ch’i* . . . , II, 49, the editors of which date it to the “late Western Chou or Ch’un-ch’iu” period, i.e. 9th–8th century. Watson, *Ancient Chinese bronzes*, pl. 46a.

²⁷⁹ Hsü, *Yü-ting-ti* . . . , 1959, no. 3, pp. 65–6, and Pl. I.

²⁸⁰ Watson, *Archaeology in China*, 68; also *Ancient Chinese bronzes*, 49b.

NUMBER EIGHTY-THREE

important component of the patina. The interior walls of the vessel are lightly covered with earthy accretions and this, in addition to traces of earth mixed with the patina products on the outside indicate the object was buried. On the sidewalls inside are two small squarish patches which seem to be ancient repairs. There are no breaks or losses, and the condition of the vessel is good.

Composition: Sample taken from edge of bottom.

Wet chemical analysis: Cu 64.7%; Sn 6.1; Pb 25.9; Total 96.7.

Additional elements estimated by emission spectrometry: Ag 0.3%;

Fe 0.3; Co 0.02; Ni 0.02; As 0.2; Sb 0.09; Bi 0.03; Mg <0.001;

Mn 0.001; Si 0.004.

The high amount of lead in the alloy is noted.

Lei

Middle Chou dynasty (7th century B.C.)

No inscription

Height, 35.6 cm. (14 in.)

Width, 42.2 cm. (16 $\frac{5}{8}$ in.)

Weight, 16.36 kg. (36 lbs., 1 oz.)

Accession number 07.33

This powerful vessel with contracted neck and flaring rim has two handles of elaborately interlaced dragon forms composing monster masks placed flat on rings on the shoulder. The body is decorated in four main bands which consist of interlocking dragon forms, and which in the top-most band are associated with birds. All the dragon bodies are studded at intervals with nipples perforated on top which may have been set with semi-precious stones. Around the top of the shoulder is a narrow band of elongated dragon forms. The dark green patina is fairly evenly encrusted all over with malachite and azurite and some areas of earthy accretions.



NUMBER EIGHTY-FOUR (07.33)

NUMBER EIGHTY-FOUR

STYLE AND CHRONOLOGY

This, like the *tsun* Number 74, is a pivotal piece in the history of decor styles as represented on bronzes in our collection. It stands at the point when the abstract band decor of middle Chou begins to acquire once more a zoömorphic character in a development that culminates in the interlaced animal patterns of the “Huai style.” The S-shaped band formations in the three broad zones of decor on the body of the *lei* have identifiable eyes, snouts, and horns at each end, and each has a leg reaching forward from a point below the head; thus, they anticipate the typical late Chou “band dragons.” Most of the eyes are marked by raised, perforated bumps, or nipples, which also appear at the midpoint of each of the double animals. In the upper-most zone, the same creatures, flattened out and single-headed, are arranged in interlocking series, alternating between upward-facing and downward-facing. All these, although closely fitted together in a geometric pattern, are still separate bodies, with no overlapping. In the center zone on the shoulder, however, the animal forms are combined with more realistically rendered birds in a pattern that involves some overlapping, and thus foreshadows in this respect the intricately interwoven designs of the sixth and fifth centuries. The outlines of the heads and bodies of the birds, and the pitted or spotted surfaces of their bodies, recall bird forms on hunting-style vessels and others of the Eastern Chou. The new style they display, along with the concept of interlacing, may have entered Chinese art proper from the stylistic repertory of the nomads of the steppe regions to the north and west.

As pointed out by Watson,²⁸¹ the “double band bent in a square meander, terminating in a head which is half griffin, half dragon, and usually with more or less explicit clawed feet below” is part of the stylistic repertory of the seventh century bronze vessels of Shang-ts‘un-ling, where we also find the beginnings of interlacing. A further stage in this development may be seen in a *lei* similar in shape to ours, formerly in the Seligman Collection, now in the Pillsbury Collection, Minne-

²⁸¹ Watson, *Ancient Chinese bronzes*, p. 56.

apolis.²⁸² On this, the interlacing has proceeded into greater complexity, covering the surface with a finer network of narrower bands among which it is all but impossible to distinguish the individual creatures. From this point, the decor evolves in two directions. One culminates in the interlacing of broad, textured bands in the Huai and Li-yü styles (e.g. the *chien* No. 94, and the *ting* No. 96). In the other, the interlaced dragons are forced into small rectangular units repeated in vertical and horizontal rows over the whole surface. The latter is exemplified by a later (fifth century?) *lei* vessel published by Jung Keng,²⁸³ and, in degenerate form, by our *p'ou* Number 102 and the *fu* base Number 108. These two somewhat separate evolutions, with their aftermaths, dominate bronze styles for the remainder of the Chou period.

Patterns similar to these may be seen on two other *p'ou* vessels which are not, however, datable: one excavated in Shensi Province,²⁸⁴ the other now in the Nanking Museum.²⁸⁵ Another of virtually identical shape and design is in the bronze vessels of the T'ai-pu-hsiang find in Honan Province, which is roughly dated to the early Ch'un-ch'iu period, i.e. the late eighth or seventh century.²⁸⁶

TECHNICAL OBSERVATIONS

Four vertical mold marks indicate the vessel was cast directly in a four-piece mold. The two handles are centered in two opposing quarters midway between mold joins. Each handle is channeled on the inside and filled with residues of hard clay cores much like the handles on *kuei*. Where the handles join the body there is a low shoulder of metal which was first suspected of being hard solder, but scraping the join to bare metal shows there is a single narrow seam between handle and vessel directly above the shoulder. The metal of the shoulder is continuous with the vessel metal which indicates that the handles were precast and the

²⁸² Karlgren, . . . *Pillsbury* . . . , No. 52, Po. 72.

²⁸³ Jung, *Shang chou* . . . , Pl. 903.

²⁸⁴ *Ch'ing-t'ung-ch'i t'u-shih*, p. 30 and Pl. 123

²⁸⁵ Chan Hui-chüan, *Ancient relics* . . . , Pl. XVII.

²⁸⁶ *Wen-wu* . . . , 1954, no. 3, p. 60; also, better reproduced, Chêng, *Ch'uan-kuo chi-pên* . . . , Pl. 145. The designs, not clear in the reproductions, may also be related to those on the *lei* under discussion.

NUMBER EIGHTY-FOUR

vessel was cast to them. There is no evidence on the inside of the vessel to show where the handles were joined; but since the thickness here is about 0.5 cm., there appears to have been sufficient depth of metal for anchoring the handles.

The surface is thickly and fairly uniformly covered with botryoidal malachite. In small areas the corrosion crust has cleaved off to reveal the metallic surface beneath. On the underside are patches of azurite and cerussite. There is no evidence of paint or repairs. The hollow centers of the many small bosses which dot the surface may once have held jewels or inlay, but if so, none remains.

Composition: Sample taken from edge of bottom.

Wet chemical analysis: Cu 66.1%; Sn 5.1; Pb 24.1; Total 95.3.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.3; Co 0.03; Ni 0.02; As 0.3; Sb 0.03; Bi 0.03; Al 0.003; Mg <0.001; Mn <0.001; Si 0.03.

The alloy has unusually high lead content.



Detail of handle

NUMBERS EIGHTY-FIVE TO NINETY-TWO

EIGHT MIDDLE CHOU VESSELS (7th century B.C.)

The eight vessels illustrated on plates 85 and 86 share a number of characteristics that set them apart from the normal run of Middle Chou bronzes. Because of their homogeneous nature they are discussed here as a group. All are decidedly smaller than usual; all are very poor in quality and cast very thin; all are heavily encrusted with corrosion products and also with earthy adhesions; none of them has an inscription. It is hard to escape the conclusion that they are *ming-ch'i*, that is to say that they were never meant to be used in the performance of any ceremony, but simply for burial with the dead as token ceremonial vessels.

The group as a whole fits in very well with the bronzes excavated at the Cemetery of the State of Kuo at Shang-ts'un-ling; and as the *Tso-chuan* tells us that this state was annexed by the State of Chin in 655, we are dealing with bronzes of the first half of the seventh century or earlier. The date of the founding of the State is still uncertain.²⁸⁷ Some of the vessels in our group are relatively unusual. The *p'ou* (No. 85) still has no exact parallel though a vessel similar in basic form but lacking handles may be seen on Plate XLV, No. 1 of the publication. There are a number of *hu* of related types among the illustrations; and an equally crude and awkward example is published elsewhere.²⁸⁸

The *kuei* (No. 88), does not occur in this shape at Shang-ts'un-ling; but two very similar pieces are published by T'ang²⁸⁹ who describes them as *ming-ch'i*. The curious little flat *huo* that look like *p'ien-hu* to which spouts and handles have been added are not altogether unknown;²⁹⁰ and a single example from Shang-ts'un-ling is illustrated though it has a very slightly different foot. As a matter of fact, there are

²⁸⁷ *Shang-ts'un-ling . . .*, *passim*.

²⁸⁸ T'ang, *Ch'ing-t'ung-ch'i . . .*, p. 114, No. 120, and text p. 29.

²⁸⁹ *Op. cit.*, p. 95, nos. 98-99.

²⁹⁰ *Shang-ts'un-ling . . .*, Pl. LVI, 1; Loehr, *Relics . . .*, p. 81, no. 51; Umehara, *SKS/J*, IV, 333; a similar vessel in the Ch'ien-lung Collection was described as a *p'ien-hu* and assigned to the Han dynasty. Cf. *Hsi-ch'ing . . .*, ch. 20, p. 28.

NUMBERS EIGHTY-FIVE TO NINETY-TWO

minor differences between our own three examples as is noted in the Technical Observations where the structure of the pieces is described.

Stylistically they all hold together with patterns of broad figured bands dominating the decor and sometimes covering the whole surface of the vessel; in places these bands cross one another in a way that anticipates the interlocking patterns of later times. This development is actually seen on the last *huo* (No. 91), and on the *p'an* (No. 92). On both vessels the bands are narrower and the interlocking is tighter; and they suggest a later date than the other six pieces, though not necessarily very much so. Even with these last two, there is no reason to believe they need be later than the seventh century. An *an* with closely related design carries an inscription which Kuo Mo-jo relates to the reign of King Hui in the second quarter of the century.²⁹¹

²⁹¹ Kuo, *Liang-chou . . .*, fig. 163, and text vol. p. 230.

P'ou (11.57)

Height, 7.0 cm. ($2\frac{3}{4}$ in.); width, 12.7 cm. (5 in.); weight, 0.37 kg. (13 oz.)

The small globular vessel has a slightly flaring lip and no foot. Annular handles topped with monster masks protrude from the sides; and the whole vessel is covered with two zones of broad spiral bands. Apparently the same design is repeated inside the recessed base. The smooth, copper-colored patina is largely covered with heavy encrustations of malachite and earthy accretions.

NUMBER EIGHTY-SIX

Ting (11.60)

Height, 16.8 cm. ($6\frac{5}{8}$ in.); width, 18.5 cm. ($7\frac{1}{4}$ in.); weight, 1.87 kg. (4 lbs., 2 oz.)

The shallow bowl has two handles rising from the rim and is decorated on the outside with two bands of typical Middle Chou pattern. The legs with their bulbous tops and slightly flaring feet are plain.

NUMBER EIGHTY-SEVEN

Hü (11.59)

Height, 19.7 cm. ($7\frac{3}{4}$ in.); width, 11.5 cm. ($4\frac{1}{2}$ in.); weight, 1.08 kg. (2 lbs., 6 oz.)

A small rectangular vessel with a lid. Two angular handles topped with horned monster heads protrude from the sides at the top. The surface is covered with three bands of crudely cast decoration: scale pattern around the lid and two zones of interlocking dragons on the body.

NUMBER EIGHTY-EIGHT

Kuei (11.58)

Height, 14.0 cm. ($5\frac{1}{2}$ in.); width, 20.0 cm. ($7\frac{7}{8}$ in.); weight, 1.76 kg. (3 lbs., 14 oz.)

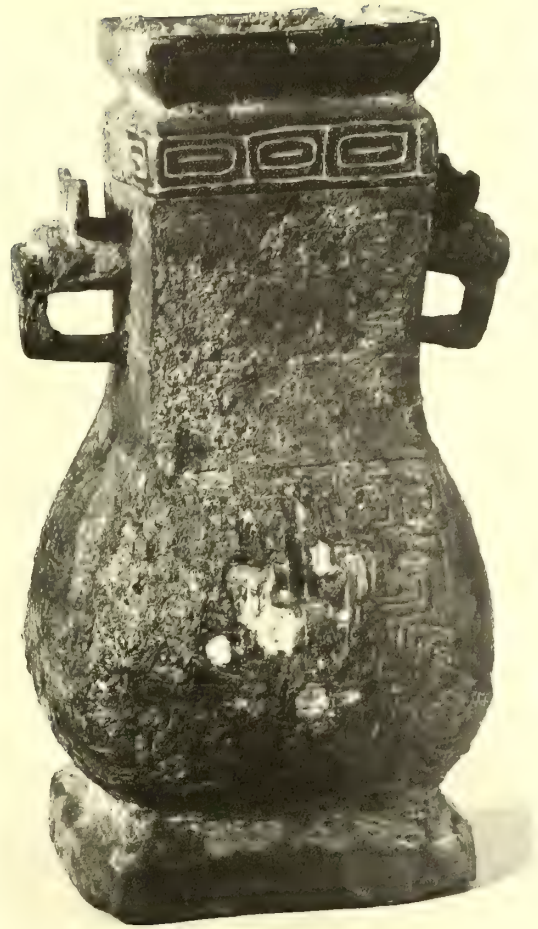
This *kuei* has a low circular finial on the lid, and no feet raise the base off the ground. In other respects it falls perfectly into the group.



NUMBER EIGHTY-FIVE (11.57)



NUMBER EIGHTY-SIX (11.60)



NUMBER EIGHTY-SEVEN (11.59)



NUMBER EIGHTY-EIGHT (11.58)

NUMBERS EIGHTY-FIVE AND EIGHTY-SIX

TECHNICAL OBSERVATIONS

No. 85 This crudely made vessel was cast in one piece, probably in a two-piece mold. There are no visible mold marks. A scraping made at the base of one handle revealed a seam where it joins the vessel, suggesting that the handles were precast and the vessel cast to them. No chaplets are visible.

Small areas of the surface have coppery metallic lustre, but most of the exterior is covered with ugly gray crusts, mostly cerussite with scattered patches of malachite and azurite. There is much cuprite underneath the carbonate mineral, especially in the valleys of the decor. Some earthy residues mixed with corrosion products indicate the vessel was buried. A wedge-shaped break in the rim has been repaired.

Composition: Sample taken from bottom.

Wet chemical analysis: Cu 80.1%; Sn 8.3; Pb 3.8; Total 92.2.

Additional elements estimated by emission spectrometry: Ag 0.2%; Au 0.01; Fe 0.01; Co 0.002; Ni 0.02; As 0.1; Sb 0.2; Bi 0.03; Al <0.001; Mg <0.001; Si 0.2.

The low total figure for wet analysis indicates the metal is deeply corroded and that no fair sample of original metal is available.

No. 86 Mold marks denoting the casting divisions cannot be seen because of the heavy corrosion and earthy accretions, but the vessel was probably cast in a three-piece mold. The legs, which appear to be cast as one with the body, are channeled on the inside and filled with dark gray baked clay, apparently original clay core. The handles are cast solid. One leg has been plugged or capped underneath with a second pour of metal with high copper content: Cu 92.0; Sn 1.8; Pb 2.8; Total 96.6. This plug seems to be an ancient repair. Another leg has broken off about half way and has been repaired with soft solder, obviously a modern repair. Much malachite and cerussite appear in the corrosion crusts.

Composition: Sample taken from middle of upright of one handle.

Wet chemical analysis: Cu 76.5%; Sn 6.4; Pb 15.3; Total 98.2.

Additional elements estimated by emission spectrometry: Ag 0.2%; Au 0.01; Fe 0.003; Co <0.001; Ni 0.02; Sb 0.2; Bi 0.03; Al 0.007; Mg 0.001; Si 0.07.

NUMBERS EIGHTY-SEVEN AND EIGHTY-EIGHT

TECHNICAL OBSERVATIONS

No.87 The vessel appears to have been cast directly in a two-piece, four-division mold with joins at the corners. The two animal head handles, which are clay cored, apparently were cast separately; but on account of deep corrosion, the mode of attachment is not apparent. The surface on the inside opposite the handle joins is smooth and uninterrupted. The underside of the bottom is plain except for a squarish depression extending inwards, the purpose of which is not clear. No chaplets were observed. The lid, which is deeply recessed, is crudely and imperfectly cast.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 77.3%; Sn 12.4; Pb 8.4; Total 98.1.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Au < 0.01; Fe 0.03; Co 0.002; Ni 0.02; As 0.05; Sb 0.2; Bi 0.03;

Al 0.002; Mg 0.003; Mn < 0.001; Si > 1.0.

No.88 The vessel and lid are crudely cast apparently in a two-piece mold assembly. A single prominent mold join runs vertically down one side midway between the handles, but there is only a trace of a corresponding join on the opposite side. The two handles are made separately and are joined to the vessel with soft solder. Probing at the join discloses no evidence of stumps or old breaks; hence, the handles were probably added in modern times. They are channeled on the inside and the channel is filled with hard clay core; join traces can be seen only along the lower stems. In the center of the bottom underneath the vessel is a sharp ridge 3.5 cm. long, 3 mm. wide, and 4 mm. high, which appears to be the stump of a sprue. There are no criss-cross marks or brackets. The lid, which has the same decor as the vessel, does not fit into a recess or over a flange in the vessel rim but just rests on top. Like the handles it might be from another vessel. There are no squarish openings in the side of the circular lid or finial in the side of the foot of the vessel. If chaplets are present, they are concealed by corrosion.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 72.1%; Sn 11.8; Pb 13.4; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Au < 0.01; Fe 0.01; Co 0.002; Ni 0.03; As 0.2; Sb 0.2; Bi 0.03;

Al < 0.001; Si < 0.001.

Huo (11.47)

Height, 17.8 cm. (7 in.); width, 14.3 cm. ($5\frac{5}{8}$ in.); weight, 1.05 kg. (2 lbs., 5 oz.)

A small flattened vessel on a high rectangular foot. At one end was a false spout, now missing; and this is balanced by a rectangular loop handle topped with a monster mask. A small bird in the round sits on a rectangular tenon which served as a lid. The flat sides are decorated with interlocking dragons in relief.

NUMBER NINETY

Huo (16.248)

Height, 17.8 cm. (7 in.); width, 21.3 cm. ($8\frac{3}{8}$ in.); weight, 1.56 kg. (3 lbs., 7 oz.)

The vessel is similar to the last but has a spout with a feline head on top. Heavily encrusted with malachite, cuprite, and earthy accretions and considerable remains of textile impressions.

NUMBER NINETY-ONE

Huo (11.46)

Height, 11.5 cm. ($4\frac{1}{2}$ in.); width, 14.0 cm. ($5\frac{1}{2}$ in.); weight, 0.31 kg. (11 oz.)

Like the above two vessels but smaller.

NUMBER NINETY-TWO

P'an (11.44)

Height, 6.7 cm. ($2\frac{5}{8}$ in.); width, 21.3 cm. ($8\frac{3}{8}$ in.); weight, 0.77 kg. (1 lb., 11 oz.)

The small, thinly cast vessel has two handles protruding from the lower part of the shallow flat basin and curving upward above the rim. Each is attached to the rim by two small buttressing members. On the outside is a single narrow band of interlocking dragons.



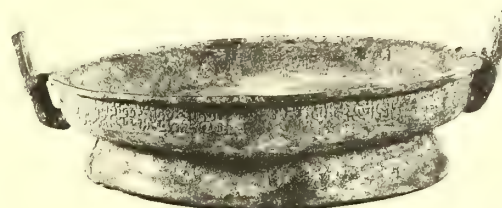
NUMBER EIGHTY-NINE (11.47)



NUMBER NINETY-ONE (11.46)



NUMBER NINETY (16.248)



NUMBER NINETY-TWO (11.44)

NUMBERS EIGHTY-NINE AND NINETY

TECHNICAL OBSERVATIONS

No.89 The vessel is cast in one piece in a two-piece mold; but unlike the other two it has only faint mold marks, principally at the base of the handle; and it is better finished. The bottom is open; the spout is broken off; and the depression in the center of the stump reveals that it was probably hollow, but there is no hole through into the vessel. The bird stopper is a separate casting and appears to be cored with clay.

Small areas of the surface still have metallic luster, but most of it is encrusted with lead and copper mineral crusts. On the back of the stopper there is a green blister of malachite broken open at the top to reveal lustrous colorless crystals of cerussite beneath. In ultra-violet light the areas of the surface rich in cerussite exhibit weak pinkish fluorescence, but there is no evidence of paint or repairs.

Composition: Sample taken from lower edge of foot.

Wet chemical analysis: Cu 73.0%; Sn 11.8; Pb 10.8; Total 95.6.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Au 0.01; Fe 0.02; Co 0.007; Ni 0.03; As 0.2; Sb 0.09; Bi 0.05;

Al 0.01; Mg 0.007; Mn < 0.001; Si 1.0.

No.90 This vessel is essentially a composite made from odd fragments. The spout and the handle are attached with soft solder; and examination of the lower join of the latter shows it does not even seem to belong to this vessel. On the interior of the vessel there is a depression opposite the spout; but if there was originally an opening here, it is now plugged either with solder or with earth. The bird stopper was shaped apparently from another old fragment of bronze and given a false patina. The spout and the handle show traces of mold marks, but the vessel itself does not. Unlike the other two vessels in this group, this has a closed bottom and also lacks the short neck around the opening at the top. The interior contains much of its original clay core.

Although tin and lead are low the gray corrosion is mostly cerussite and tin oxide. Traces of fabric pattern are in part of the crust.

Composition: Sample taken from lower edge of foot.

Wet chemical analysis: Cu 87.1%; Sn 5.3; Pb 3.4; Total 95.8.

Additional elements estimated by emission spectrometry: Ag 0.3%;

Au 0.01; Fe 0.009; Co 0.002; Ni 0.01; As 0.2; Sb 0.07; Bi 0.05;

Al 0.002; Mg 0.001; Si 0.07.

NUMBERS NINETY-ONE AND NINETY-TWO

TECHNICAL OBSERVATIONS

No.91 A single mold mark which runs around the narrow side of the vessel indicates it was cast with spout and handle in a simple two-piece mold. The vessel and the flared base are hollow and open. On the inside of the open foot where it meets the body is a narrow horizontal ridge which seems to mark the juncture of upper and lower mold cores. The four small holes which pierce one side seem to be functional but do not appear to have contained chaplets. The hollow spout does not appear to open into the body, and the small bird stopper is hollow cast. Much of the surface is covered with thin, dull- gray-green corrosion, a mixture of malachite and cerussite entangled with earthy residues.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 75.3%; Sn 9.9; Pb 9.7; Total 94.9.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Au <0.01; Fe 0.01; Co 0.01; Ni 0.03; As 0.1; Sb 0.3; Bi 0.03;

Al 0.002; Mg <0.001; Si 0.05.

No.92 Like the larger *p'an* (No. 82) this vessel appears to have been cast in one piece including the two bars that join each handle to the rim. The handles are solid but thin and like the rest of the vessel are crudely cast. Three vertical mold marks show, however, that it was probably cast directly in a three-piece mold. The decor band is not continuous under the handle.

The surface is fairly deeply encrusted with dull green, red, and grayish deposits. The large whitish deposit on the underside is made up mostly of crystals of cerussite tinged in places with a dull reddish impurity which is not cuprite but is probably litharge or lead monoxide. In ultra-violet light the cerussite patches fluoresce faintly pink, but there is no evidence of paint or repairs. Some earthy residues are mixed with the rough patina. There are no breaks or losses.

Composition: Sample taken from side of one handle.

Wet chemical analysis: Cu 72.5%; Sn 7.9; Pb 16.8; Total 97.2.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Au <0.01; Fe 0.02; Co 0.02; Ni 0.03; As 0.1; Sb 0.3; Bi 0.03;

Al 0.002; Mg 0.001; Si 0.03.

I

Gift of Mr. and Mrs. Eugene Meyer

Middle-late Chou dynasty (6th century B.C.)

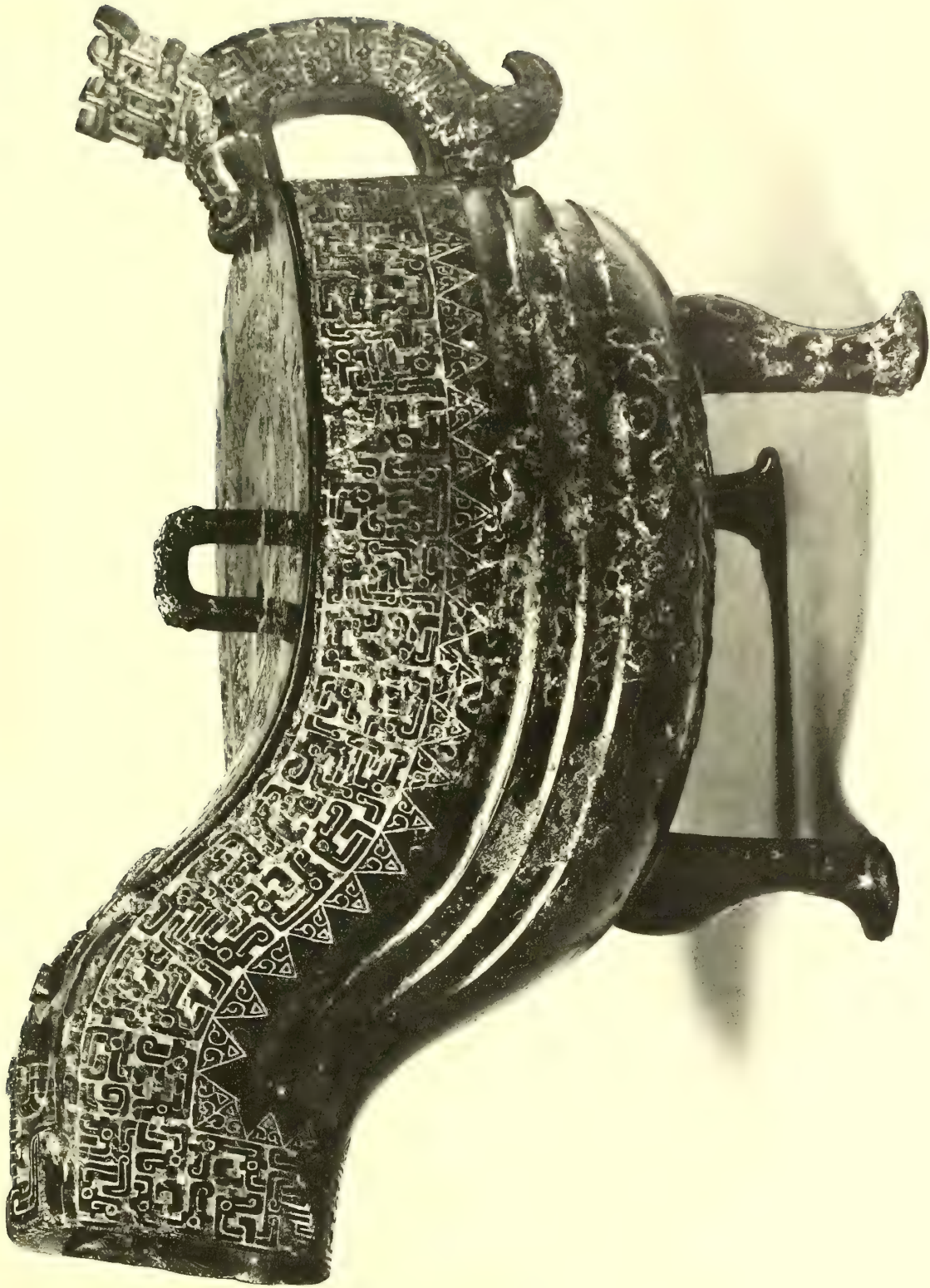
No inscription

Height, 20.5 cm. ($8\frac{1}{8}$ in.)Width, 32.0 cm. ($12\frac{5}{8}$ in.)

Weight, 3.01 kg. (6 lbs., 10 oz.)

Accession number 61.31

The covered vessel stands on three short legs with bulbous tops and flaring feet. Around the upper rim is a finely cast band of interlocking dragon forms from which hangs a row of small triangles; below this are three broad fluted bands. The dragon motif is repeated around the lid. Lying over the spout is a finely cast monster mask in relief. The handle at the back has an elaborately conceived monster mask at the top, and the sides are covered with interlocking dragon forms with small rounded studs at frequent intervals. The vessel is covered with a uniform glossy black patina on which there are minor areas of encrustation.



NUMBER NINETY-THREE (61.31)

NUMBER NINETY-THREE

STYLE AND CHRONOLOGY

While this is the only example of the *i* vessel in the collection, the type is not uncommon. It seems to have been limited to a period extending from around the late eighth century to the fifth century. For the earliest stage, we might cite the Ch'u-ying *i* in the Sedgwick Collection, London; the inscription on this led Yetts to date it to the year 704.²⁹² A very similar *i* was among the seventh century bronzes found at Shang-ts'un-ling,²⁹³ and other pieces of similar shape are in other collections.²⁹⁴ These differ from ours in several features: they have four legs which are straighter and take the forms of dragons; there is no bridge over the pouring spout; the lids (supposing they were present) presumably continued all the way to the lip; and the bodies are generally shallower, more boat-shaped. The decor on these is of the type we have discussed in assigning other vessels to the seventh century (e.g. Nos. 83 and 84). Another example, similar in shape, features the angular-band "dragons" with raised, socketed eyes like those in the upper decor band of the *lei* Number 84.²⁹⁵ The present *i* retains from the seventh century stage the division of the body surface into a decor zone above and horizontal fluting below, but the four dragon legs are replaced by three of cabriole shape, and the spout is covered. In a still later period, the lower portion of the body is undecorated, and the spout takes on a more tubular shape.²⁹⁶

The position of our *i* within this series suggests a date in the sixth century, and the style of the decor bears this out. A piece very useful for comparison is the Keng-jen *ting*, found at Hou-ma in Shansi Province.²⁹⁷

²⁹² Yetts, *A ch'u bronze*; cited, and the piece reproduced by Watson, *Ancient Chinese bronzes*, p. 76 and Pl. 49a. Also in Lion-Goldschmidt, *Chinese Art*, vol. I, pl. 35; along with a *p'an* vessel bearing the same inscription (pl. 36). In this inscription, the ruler of the Ch'u state is referred to as "the King," and since the Ch'u prince usurped that title in 887 and again in 704, Yetts ascribes the vessel to the latter year.

²⁹³ *Shang-ts'un-ling* . . . , Pl. XXXIX, No. 1.

²⁹⁴ Umehara, *SKS/J*, IV, 337-9.

²⁹⁵ Huang, *Tsun ku-chai* . . . , III, 17.

²⁹⁶ *Shou-hsien Ts'ai-hou* . . . , Pl. 17, No. 5, missing its legs, probably fifth century; Mizuno, *In shū* . . . , Pl. 149 with a beast's head on the spout, three cabriole legs (the single one at the back), and decor of a type suggesting a date in the same century, the fifth; Umehara, *Sengoku* . . . , Pl. XII, from Li-yü, also probably fifth; and Watson, *Ancient Chinese bronzes*, Pl. 62b, somewhat later than these.

²⁹⁷ *Kaogu*, 1963, No. 5, pp. 270-272, and Pl. I, no. 1; rubbings of the decor in Pl. VII, p. 235, figs. 3, 5, 8, and 11. The inscription indicates that the vessel was cast by a prince of the Hsü state, which was destroyed by Wu in 512. In the opinion of the excavators, the Hou-ma find as a whole covers a period, from the late Western Chou or early Ch'un-ch'iu period through the middle of the Chan-kuo period, i.e. 8th to 4th century.

The main band of decor is almost identical with that on the present *i*, and very similar triangular designs, presumably survivals of the archaic "hanging blade" motif, appear below.²⁹⁸ On the handle are serpent-like creatures rendered as raised bands with diagonal striation and long-snouted heads at one end; these are closely paralleled on the horns of the creature that forms the handle of the *i*.²⁹⁹ The probable date for this *ting*, on the evidence of the inscription, is during the time of Hsiang, Duke of Lu (572–542). Another piece with related decor, although closer to the earlier type seen (e.g., on the *huo* No. 91), is the Ch'in-kung *kuai*, dated by different authorities to the end of the seventh or the sixth century.³⁰⁰ The decor of the main band is also paralleled on vessels found at Liu-li-ko, a find that is not, however, securely datable.³⁰¹

TECHNICAL OBSERVATIONS

The legs are solid and are cast as one with the vessel. The handle, however, is precast full-round with a clay core, and was apparently fixed in a mold so that the body was cast on to it. The spillage of metal at the joins is from the body over onto the handle; and this can best be seen where the mouth of the animal bites the rim of the vessel. The legs of *ting* tripods are attached to the bodies in a similar way. The open-work mask which surmounts the animal heads of the handle shows no vestiges of mold marks either on the outer or inner edges; and moreover, owing to high finish of the metal surface no signs of mold-join traces now remain in the undecorated areas. In the broad decor band around the upper part a parting line may be seen somewhat off center under the pouring spout, and another is at the back approximately 1 cm. to the right of the handle (see *fig. 45*). Under the vessel and along the legs, however, there are no signs at all that piece molds were used. A seam along both sides of the pouring spout cover indicates it was separately cast and close examination reveals that the join was made with hard solder.

²⁹⁸ *Op. cit.*, p. 235, fig. 3.

²⁹⁹ *Op. cit.*, p. 235, fig. 11.

³⁰⁰ Kuo Mo-jo, *Liang chou . . .*, fig. 127; Karlgren, *Yin and chou . . .*, C176, p. 71, where the identification of the Prince of Ch'in in the inscription with Huan-kung (603–577) is judged to be "most plausible;" and Mizuno, *In shū . . .*, Pl. 175c, dated by him to the period 576–537.

³⁰¹ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 57.



FIGURE 45

There are no signs of chaplets except for a metal plug in the center of the lower inside surface of the handle.

The loop handle on the lid is precast and the thin flat lid is cast onto it, a join that was made possible by a slight thickening of the lid directly under the handle. The lid fits poorly in spite of the notch in back and the tongue in front that act as guides. It seems odd that the designer chose to

make the division between the vessel cover and the spout cover directly across the *t'ao-t'ieh* muzzle.

The all-over impression is that the decor was made from some master pattern, die, or stencil; but the small "snouted" dragons, differ in detail as do the small decorative triangles.

Each side of the handle is decorated with 21 circlets set with small round jewels of banded malachite, of which about half are missing. It is quite likely that the deep-set eyes of the animal, the square depression in the forehead, and also the eyes of the two *t'ao-t'ieh* on the cover of the pouring spout were also originally inlaid with malachite.

The surface is covered all over with glossy mirror-black patina; but in many places it is slightly lifted and scaled by tiny local corrosion centers. This same phenomenon is often seen on early Chinese bronze mirrors and seems to be characteristic of sub-surface corrosion on highly polished metals. The inside surface also is glossy black and little corroded. There are vertical cracks in the thin walls in either side which is further evidence of deep corrosion.

Composition: Sample taken from left hind leg.

Wet chemical analysis: Cu 79.7%; Sn 17.1; Pb 0.7; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.1%; Fe 0.2; Co 0.02; Ni 0.03; Sb 0.01; Mg < 0.001; Si 0.01.

The alloy is notably high in tin and low in lead, and resembles the composition of mirror metal.

Chien

Late Chou dynasty (5th century B.C.)

Inscription of six characters on the inside

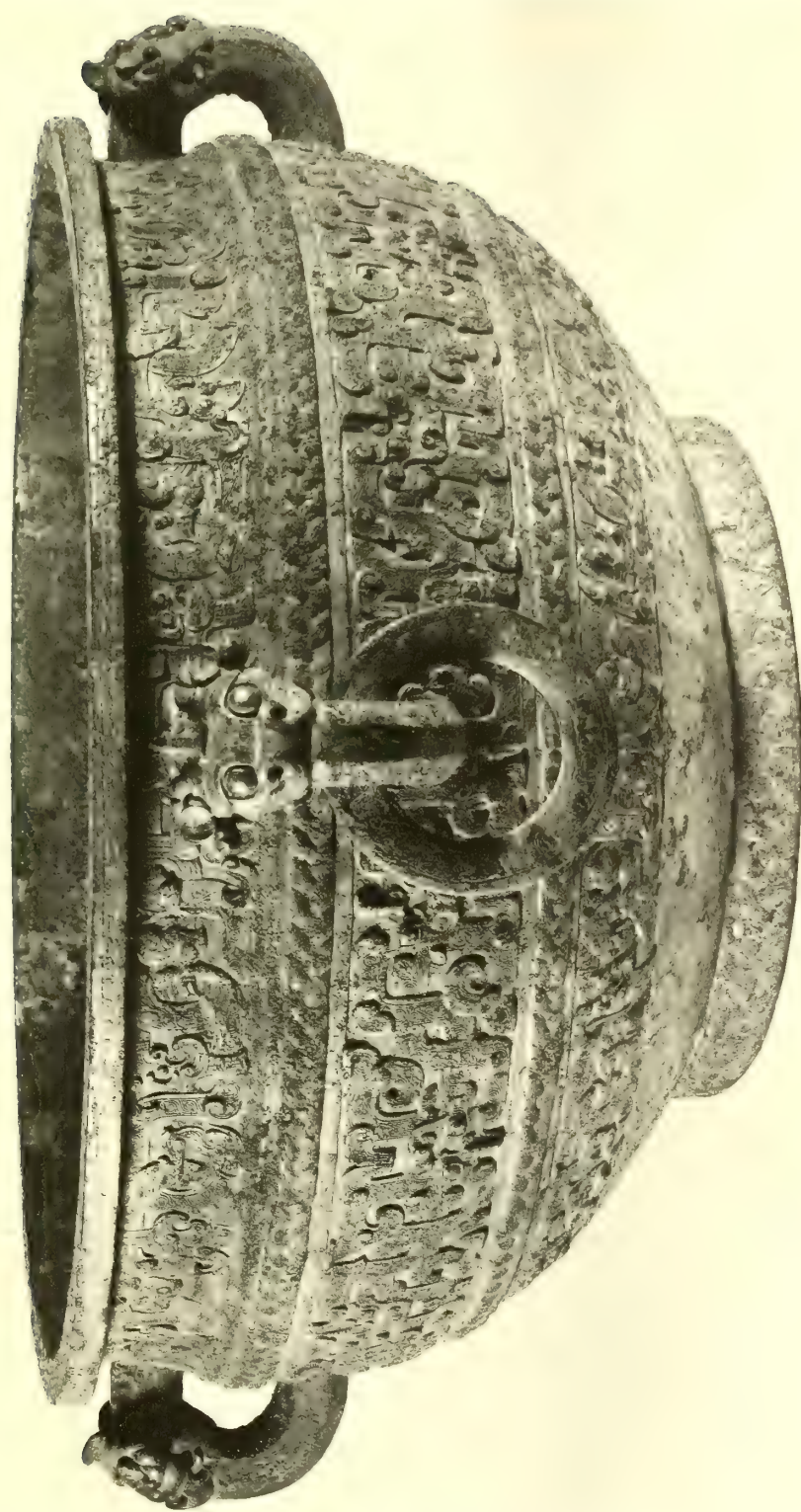
Height, 22.8 cm. (9 in.)

Width, 51.7 cm. (20 $\frac{3}{8}$ in.)

Weight, 9.27 kg. (20 lbs., 7 oz.)

Accession number 39.5

The large basin has four handles topped by monster masks, and loose flattened rings with intaglio decoration depend from two of them. The surface is divided into three principal bands; each decorated with highly stylized interlocking dragon forms depicted in broad bands covered with fine spirals and triangles in intaglio. The principal decorative zones are separated by braided rope bands in relief, and a third such band surrounds the foot. Around the outer edge of the lip is a band of cowries. The surface is covered with an even, pale green patina with a moderate amount of granular encrustation.



NUMBER NINETY-FOUR (39.5)

NUMBER NINETY-FOUR

STYLE AND CHRONOLOGY

Since the inscription refers to the Chih family of the state of Chin, which was extinguished in 453, the vessel must have been made prior to that. Evidence for a closer dating is offered by the famous pair of Huang-ch'ih *hu* in the Cull Collection, on which the "Huai style" decor in the broad zones, separated by bands of braid pattern, is strikingly similar to that on our *chien*. Yetts, in his long study of the Cull *hu*, offers the year 482 as the most likely date, and the Chin State as the probable locality for their manufacture.³⁰²

The fillings in the flat bands that make up the "bodies" of the animals, fine designs composed of triangles and spirals, are to be seen also in the intertwined animals of the Li-yü style (e.g. on the *ting* No. 96 and the *tun* No. 103). The Li-yü bronzes are not, however, precisely datable. The origin of the "Huai style" as seen in the present *chien*, with raised bands that end in curls rising still higher from the surface, is equally hard to date. If Karlgren is correct about the date of the Piao Bells, it must be as early as 550;³⁰³ but this is far from certain, and the alternative date of 398 advanced by Yetts fits better with other evidence, especially as the decor on the bells seems a debased, and, therefore, later, form of that on the Cull *hu* and our *chien*. More relevant, and of more value in dating, is the Wang-sun I-che *chung*, with an inscription that makes it, according to Loehr, "safely datable before 512."³⁰⁴ We may suppose this style, then, to have been current from the late sixth century through much of the fifth, and even (if the date 398 is correct for the Piao Bells) into the early fourth. In a somewhat degenerate form it occurs on bells and other bronze objects from the Great Tomb (No. 1) at Shan-piao-chen, now dated generally to the middle or later fifth century. The same tomb produced two *chien* vessels similar in shape to ours but decorated with battle scenes.³⁰⁵

³⁰² Yetts, *The Cull . . .*, pp. 45-75 and Pl. XVI

³⁰³ Karlgren, . . . *the Piao bells*, 1934, pp. 137-149. The bells are reproduced in White, *Tombs of old Loyang*, Pl. CLXVII-CLXIX

³⁰⁴ Loehr, Review of Yetts, *The Cull . . .*, p. 424. The bell reproduced in Jung, *Shang chou . . .*, No. 956. Jung offers no evidence for dating, and the basis of Loehr's statement is not clear; perhaps his reference should rather be to the similar bell formerly in the Tuan Fang Collection (*T'ao-chai chi-chin hsü-lu*, I.5) which as Karlgren states (*op. cit.*, pp. 148-9), can be safely placed before 512, the date of the annihilation of the State of Hsü where it was cast.

³⁰⁵ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 3-7, 12, 15-16; pls. 19-20.

TECHNICAL OBSERVATIONS

Mold marks or join lines indicate that the vessel was cast directly in a four-piece mold. The four handles are cast separately and fixed on with hard solder directly over the vertical join lines. Additional unevenly spaced join lines, which seem to be pattern joins, can be seen in braided rope bands. Although the fine concentric lines of the braid pattern look engraved, they actually are cast. This is shown by the fact that they do not cross the join marks, and they fail to register perfectly where they meet. Moreover, these fine lines are covered over irregularly by the edges of the shoulder formed by the hard solder around each handle join. The fine decor, however, must have been cut or engraved into the material that was used for the model. It is possible that clay master patterns in positive relief were employed in duplicating the repeated elements of the decor and that clay negative impressions from these were incorporated directly into the molds which were constructed around a plain core. Examples of master patterns for this type of decor have been excavated from the Chan-kuo period bronze foundry site at Hou-ma.³⁰⁶

A sprue remnant about 7.5 cm. long and 0.3 cm. high crosses the center of the bottom. There are no criss-cross lines or brackets, and the inside of the foot is left unfinished and is lined with hard clay residues from the original mold. Irregular ridges on the bottom were probably formed by molten bronze seeping into cracks in the mold (*fig. 46*).

The inside is plain except for the wide shoulder beneath the rim. No vestiges of chaplets can be seen inside or out.

Perhaps the most unusual features are the handles which are cast separately, each with a core of grayish clay. The composition of one of the handles (*vide infra*) appears to be close enough to the composition of the vessel metal to indicate they were cast from the same alloy melt; hence, they are no doubt contemporary with the vessel. The join of each handle is run around with an irregular ribbon of hard solder which secures it firmly to the vessel. On one side of each handle just above the join of the upper branch with the vessel appears a small blob of hard solder metal

³⁰⁶ Chang Han, *Hou-ma . . .*, No. 10.

NUMBER NINETY-FOUR

which seems to fill a perforation at this point. The technique of joining these handles appears to be similar to the technique employed in joining the animal heads on *yu* Number 50 and *tsun* Number 16. The positions of the handles do not show on the inside. This method of attaching handles would easily permit the addition of the loose rings which themselves show no sign of a join.



FIGURE 46

The inscription appears to be incised, probably in antiquity. The strokes are sharp and finely executed, and chatter marks and doubled grooves from repeated passes of the incising tool can be seen. The grooves have a long, thin taper at the ends from the lead-in and lead-out of the incising tool. The corrosion layer of the body continues uniformly into the grooves, and the tool marks have been somewhat softened by corrosion.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 70.8%; Sn 12.8; Pb 14.7; Total 98.3.

Sample taken from handle without ring to left facing inscription (single analysis): Cu 69.2%; Sn 14.3; Pb 14.2; Total 97.7.

Additional elements estimated by emission spectrometry: Ag 0.2%

Au <0.01; Fe 0.1; Co 0.01; Ni 0.07; As 0.3; Sb 0.1; Bi <0.03; Cr 0.002; Mg 0.002; Mn <0.001; Si 0.01.

INSCRIPTION

A single line of six characters is incised inside the vessel wall – the sister vessel in the Pillsbury Collection is similarly incised. It is not uncommon to find incised inscriptions in Chan-kuo period bronzes. Most are authentic but occasionally spurious examples appear. The inscription reads: “The esteemed *chien* of the son of the ruler of Chih.” Other slight variations in interpretation are noted in Volume III. Some useful historical background is noted by Mr. Lodge in the old Freer catalogue.



Chien

Late Chou dynasty (late 6th–early 5th century B.C.)

No inscription

Height, 28.0 cm. (11 in.)

Width, 61.0 cm. (24 in.)

Weight, 12.76 kg. (28 lbs., 2 oz.)

Accession number 15.107

The large basin has four loop handles attached to the upper part. Each has a monster mask at the top and a loose flat ring with designs in intaglio hanging below. The main decoration is in three horizontal bands showing human beings and animals and chariots arranged in hunting scenes. In each band the same scene is repeated seven times around the vessel. A single row of animals appears on the top of the lip, and on the outer edge of the lip and on two main broad bands that divide the hunting scenes are stylized patterns of volutes and triangles. A single braided rope band surrounds the foot. On the inside are geese, fish, and turtles in relief arranged in rows. The whole surface of the vessel inside and out is covered with a dark greenish patina with some areas of malachite encrustation. The basin has been slightly damaged and shows occasional small breaks in the surface.



NUMBER NINETY-FIVE (15.107)

NUMBER NINETY-FIVE

STYLE AND CHRONOLOGY

Two *hu* with related designs are known; one is in the former Werner Jannings Collection, now in Peking, the other in Paris.³⁰⁷ Both seem more advanced than our *chien* in some respects, especially in the extent to which the scenes of hunting and battle are composed pictorially, instead of being products of the chance juxtaposition of barely related motifs. Mrs. Consten, discussing the Jannings *hu*, considers it to be somewhat later than ours, although she avoids assigning a precise date to either. The two related *chien* in the Shan-piao-chen find were mentioned in connection with Number 94.³⁰⁸ Unfortunately, there are no solid grounds for a positive dating of that find though it is generally ascribed to the fifth century.

The best clue to both the date and the provenance of our *chien* is its affinities with bronzes from Li-yü. The geese, fish, and tortoises represented in low relief-like appliqué on the interior surface of the vessel are found also in examples matching so closely as to suggest that the same stamp may have been used to impress them in the mold, on bronzes from Li-yü or in the Li-yü style.³⁰⁹ There they occur in combination with the typical Li-yü decor of richly ornamented, intertwined bands. On our *chien* this kind of decor appears only on the highly formalized monster masks that top the handles. As will be noted in the Technical Observations below, these handles are attached to the vessel with soft solder and, therefore, are not *necessarily* contemporary.

The design on the narrow zones separating the hunting scenes, composed of open triangles with hooks and spirals at the open ends, is common on bronzes of the "hunting style." A variant of it is to be seen on the *chien* from Shan-piao-chen. It is surely related to, and presumably precedes, the more elaborate diagonal-and-curl patterns of the later fifth and fourth centuries.

³⁰⁷ Consten, *A hu . . .*; and Vandier, *Note sur un vase Chinois . . .*. Since the latter article was written the piece has been transferred to the Musée Guimet where it is No. A.A.73.

³⁰⁸ Kuo Pao-chün, *Shan-piao-chen . . .*, pp. 18–19 and 23 for description and discussion, pp. 20–22 and 47–48 for rubbings and drawings of the designs; the pieces (1:28 and 1:56) on Pl. 19–20.

³⁰⁹ A fragmentary *p'an* from Li-yü, published by Umehara (*Sengoku . . .*, Pl. XIII), and a *hu* now in the Norfolk Museum, Norfolk, Virginia.

In view of these indications, we assign the *chien* to the same period as the bronzes of the Li-yü style, the late sixth or early fifth century.

TECHNICAL OBSERVATIONS

The mold join marks are plainly visible under the overhanging rim, and faintly visible where they continue down through the decor areas to the foot. The band of rope decor around the foot shows a number of irregularly spaced joins. There are several rather large chaplets in the vessel wall and bottom of which some have loosened and fallen away. A long sprue ridge appears on the bottom; and there are no criss-cross lines or brackets. Some original mold clay is still lodged in the recess under the overhanging rim and also just inside the foot. The four handles are separately cast, but they do not seem to be original with the vessel because they are fixed on with soft solder; and the joins are evened up with plaster and concealed with modern paint which contains Paris green pigment. The handles are hollow. The ends that make contact with the vessel are irregular which suggests they are broken fragments from another vessel joined on in recent times. As shown by X-rays they are fitted over stumps of the original handles which in turn seem to be fitted over a boss which projects from the side of the vessel. This also could explain why so much solder and fill is needed at the joins. One of the handles appears to be a forgery because the modeling is cruder and the surface lacks the fine sunken decor of the other three, which appear to be genuine and contemporary. All four rings are also probably later additions. Another reason for doubting the handles is that they are fixed directly over the shallow sunken decor of the vessel side. The small figures of the hunting scene appear at first glance to be engraved into the surface; but close examination shows that in places the three mold join traces appear to pass directly through some of the figures and in other places to interrupt the decor. This suggests strongly that the shallow decor is cast-in rather than engraved. The sunken decor, furthermore, appears to have a whitish filling or inlay. Close examination indicates that this white is cerussite, which is a corrosion product of lead; and this recalls the fact that the alloy has a lead content which amounts to one

NUMBER NINETY-FIVE

quarter of the whole. It is difficult to explain why the cerussite concentrates in the sunken areas, but it might result from all-over mechanical cleaning and abrasion of the surface which swept off cerussite in the high areas and permitted it to remain in the low. It has been suggested that the sunken areas might originally have been inlaid with silver, but if so none now remains.

The outer surface of the vessel is fairly uniformly covered with a dark green patina, mainly a mixture of cerussite and malachite which seems genuine, and the added handles have been toned to match. One long crack underneath has been filled with plaster and concealed with paint.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 63.7%; Sn(+Sb) 7.9; Pb 26.0; Total 97.6.

Additional elements estimated by emission spectrometry: Ag 0.3%;

Au < 0.01; Fe 0.02; Co 0.02; Ni 0.09; As 0.7; Sb > 1; Al 0.001;
Mg < 0.001; Si 0.004.

This is one of the most highly leaded bronzes in the collection; and it is one of the few that have antimony content greater than 1 percent.



Detail of decor band

Ting

Late Chou dynasty (6th–5th century B.C.)

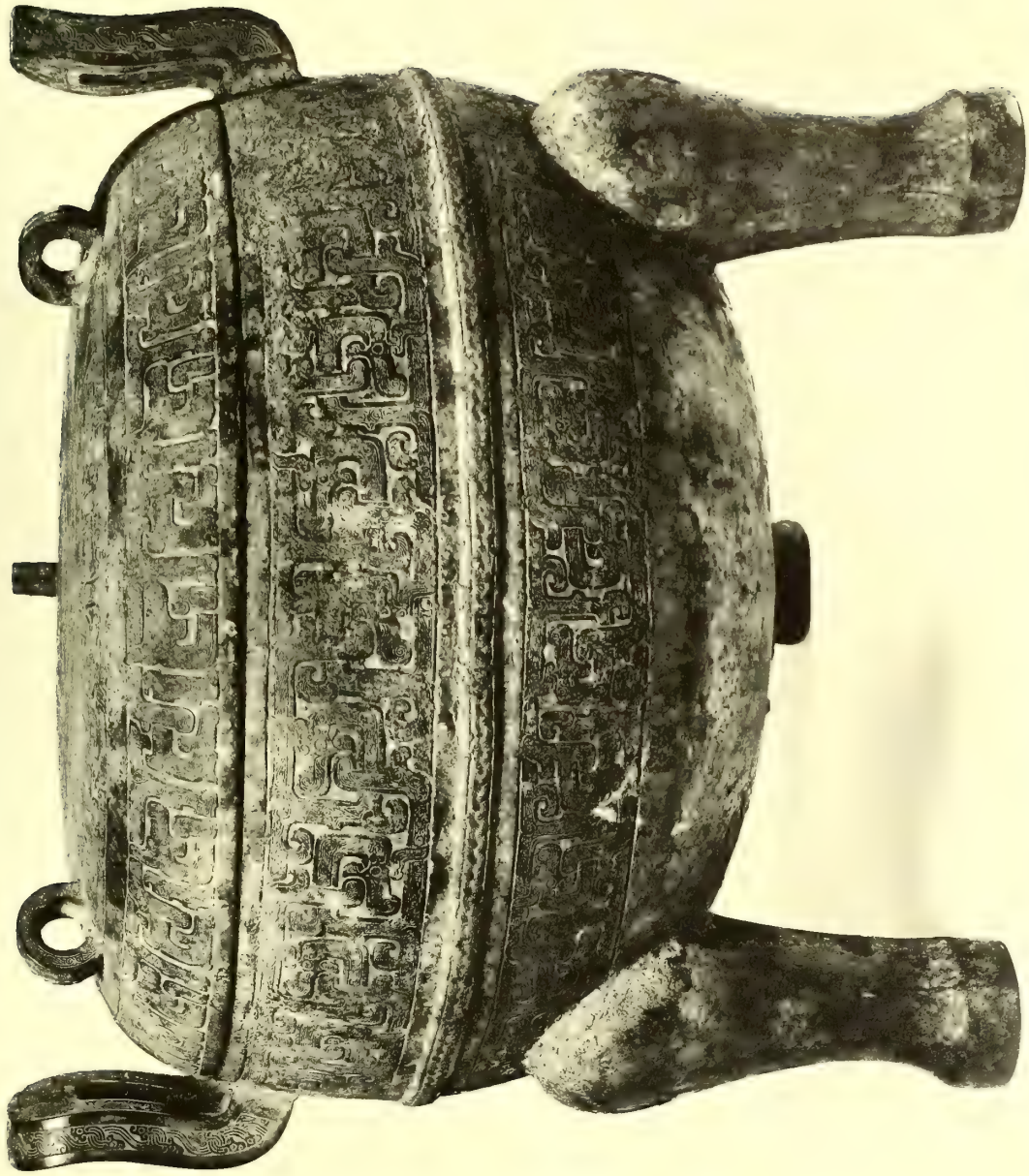
No inscription

Height, 38.7 cm. (15 $\frac{1}{4}$ in.)Width, 49.2 cm. (19 $\frac{3}{8}$ in.)

Weight, 20.67 kg. (45 lbs., 9 oz.)

Accession number 47.20

The large covered vessel is decorated in a series of horizontal bands of interlocking dragons; and the two main bands on the body are separated by a strip of braided rope pattern. Two handles, rectangular in section, spring from the top edge of the bowl and curve gracefully upward to a point higher than the top. On the lid stand three small rings which serve as feet when inverted. The three heavy legs with bulbous tops and flaring feet are plain. The vessel is evenly covered with malachite encrustation over most of its surface.



NUMBER NINETY-SIX (47.20)

NUMBER NINETY-SIX

STYLE AND CHRONOLOGY

This tripod is one of the most monumental examples of what is known as the Li-yü style, so-named after the hoard of bronzes discovered in 1923 at that town, located Southeast of Ta-t'ung in Shansi Province.³¹⁰ One *ting* of similar shape, though much smaller and more elaborately decorated, was found there,³¹¹ and a number of others are associated with the Li-yü bronzes by their shapes and decor. Three closely related to ours are in the National Palace Museum, Taiwan, the Rhöss Museum in Gothenburg, Sweden, and the Fujii Yürinkan, Kyoto.³¹² A smaller *ting* of this type with slenderer legs is in the Buckingham Collection, Chicago Art Institute;³¹³ the designs on this, while related, are composed of narrower dragons with only diagonal striation as their filling, instead of the rich variety (spirals, triangles, striation, pseudo-granulation) in the creatures on ours and the others. Bachhofer takes this more limited decorative repertory as an indication of earlier date, and in view of the closer affinities of the designs on the Buckingham *ting* with sixth century and still earlier designs (e.g. that on the *i* No. 93), his suggestion is probably correct.³¹⁴ A *ting* formerly in the collection of Mrs. Christian Holmes illustrates what is probably a later stage in the development of this style.³¹⁵ Here there is still more separation of levels in the decor; and also clearly evident is the division of the ornament into paired units, each symmetrical about a vertical axis, which has been cited as characteristic of a late stage in the Li-yü style.³¹⁶

These are, however, only hints for relative dating, and the actual historical period they cover is still uncertain. Watson surmises that the style was created around the middle of the sixth century, and was abandoned by 500. We may note, however, its occurrence on the lid of a *tou* from Tomb I at Shan-piao-chen, along with an all-over pattern of

³¹⁰ Salles, . . . *Li-yü*.

³¹¹ *Op. cit.*, Pl. XLIIIc; Umehara, *Sengoku* . . . , Pl. I.

³¹² *Ku-kung t'ung-ch'i* . . . , II, 101; and Jung, *Wu ying tien* . . . , 28-9. Umehara, *Sengoku* . . . , Pl. XXIX. Umehara, *SKS/J*, V, 358.

³¹³ Kelley, *Chinese bronzes from the Buckingham Collection*, Pl. LIV-LVI.

³¹⁴ Bachhofer, *A short history* . . . , pp. 43-4.

³¹⁵ Umehara, *Sengoku* . . . , Pl. XXX-XXXIII.

³¹⁶ Watson, *Ancient Chinese bronzes*, p. 59.

curls rising from a ground of pseudo-granulation, a type of decor ordinarily associated with the middle and later fifth century.³¹⁷ This suggests a survival of the style into the fifth century, and the more cautious dating for our *ting* given above.

TECHNICAL OBSERVATIONS

The legs and handles, all of which are clay cored, were first cast separately and then the vessel was cast to them. The method is revealed by the presence of a seam at the join of each leg and handle to the body and also by a narrow irregular overlap of metal from the vessel to the attached member. Presumably the precast legs were arranged symmetrically in a three-piece mold and the vessel cast to them in such a way that vessel metal flowed in and around the leg tops, and on cooling all members were securely locked together. There is no evidence of the use of hard solder. Vertical mold marks appear on either side of each leg indicating they were cast in two-piece molds. There are no openings on the inner flat faces of the legs into the core. The handles which are clay cored and cast full square are attached in the same way as the legs. A small rectangular hole opens into the core on the inner flat face of each handle, about 1 cm. from the joins to the vessel but small thin rectangular spacer openings appear along the inner surfaces. On the underside of the vessel is a low circular ridge from which three symmetrically placed narrow ridges, apparently mold marks, radiate up the sides of the vessel and pass through the decor bands. There is faint evidence of chaplets in the plain band about the vessel middle, but elsewhere none.

The lid shows no signs of mold joins. It was probably made in a two-piece mold with parting lines around the rim. The three loop handles appear to be cast as one with the lid. X-rays reveal that the lid casting is full of blow holes; also, that there are a number of chaplets in the plain circular bands that divide the decor bands.

Much of the surface of the vessel is covered with smooth gray-green, tin-oxide patina. Other areas bear thin scattered crusts of malachite and azurite.

³¹⁷ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 12.

NUMBER NINETY-SIX

That the vessel has been extensively repaired was first revealed by a pinkish fluorescence in ultraviolet light and by probing the surface with a stout needle. This shows that a breakout and loss on the lower side of the vessel has been replaced with a piece of sheet copper held in with soft solder and covered over with false patina. It will be observed in the photo detail of the underside that one of the three radiating mold marks is missing in the area of the repair. X-rays show that the center of the lid was crushed in and broken into six fragments which have been joined together with soft solder. No damage was done to the lid rim. These mends are likewise concealed with painted patina. (See Ch. VII, Vol. II.)

Composition: Sample taken from rim.

Wet chemical analysis: Cu 74.8%; Sn 13.7; Pb 10.0; Total 98.5.

Sample taken from underside of leg: Cu 73.6%; Sn 11.7; Pb 11.4;
Total 96.7.

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.2; Co 0.03; Ni 0.09; As 0.05; Sb 0.09; Mn < 0.001.



Detail of decor on upper outside of handle ($\times 1.5$)

Hu

Late Chou dynasty (5th century B.C.)

No inscription

Height, 44.8 cm. (17 $\frac{5}{8}$ in.)Width, 26.6 cm. (10 $\frac{1}{2}$ in.)

Weight, 9.38 kg. (20 lbs., 11 oz.)

Accession number 57.22

The tall graceful round vessel has two animal handles in the shape of stylized tigers with heads turned backward and tongues protruded. The animals are richly decorated in intaglio and the dark patina set off by copper inserted in the fossae. There are four main decorative bands all consisting of interlocking dragon forms executed in broad strokes covered with volutes and spirals in intaglio. These bands are separated by five braided rope patterns in relief. Similar decoration is arranged in ogival panels extending above the top-most rope pattern and hanging below the lower one; related decorations surround the foot. The vessel is exceptionally finely cast and covered with a uniform dark brownish patina interrupted only occasionally by malachite encrustation on one side.



NUMBER NINETY-SEVEN (57.22)

STYLE AND CHRONOLOGY

A probable date of manufacture for this vessel is immediately suggested by its close similarity, in all important respects, to the pair of Huang-ch'ih *hu* in the Cull Collection, which Yetts ascribes, on the evidence of their inscriptions, to the year 482 or very shortly thereafter.³¹⁸ The decor of the main zones, along with the bands of braid separating them, are all but identical; the beasts (tigers?) that form the handles are smaller on ours, and slightly different in formation, but of similar style. The Cull *hu* have simple, flaring bases, while ours is raised and richly ornamented with decor of the same type as that on the body (*fig. 47*). An approximate parallel for our base, but with a braid pattern in place of the dragons in the lowest band, is to be seen on the two *hu* vessels from Li-yü.³¹⁹ Our

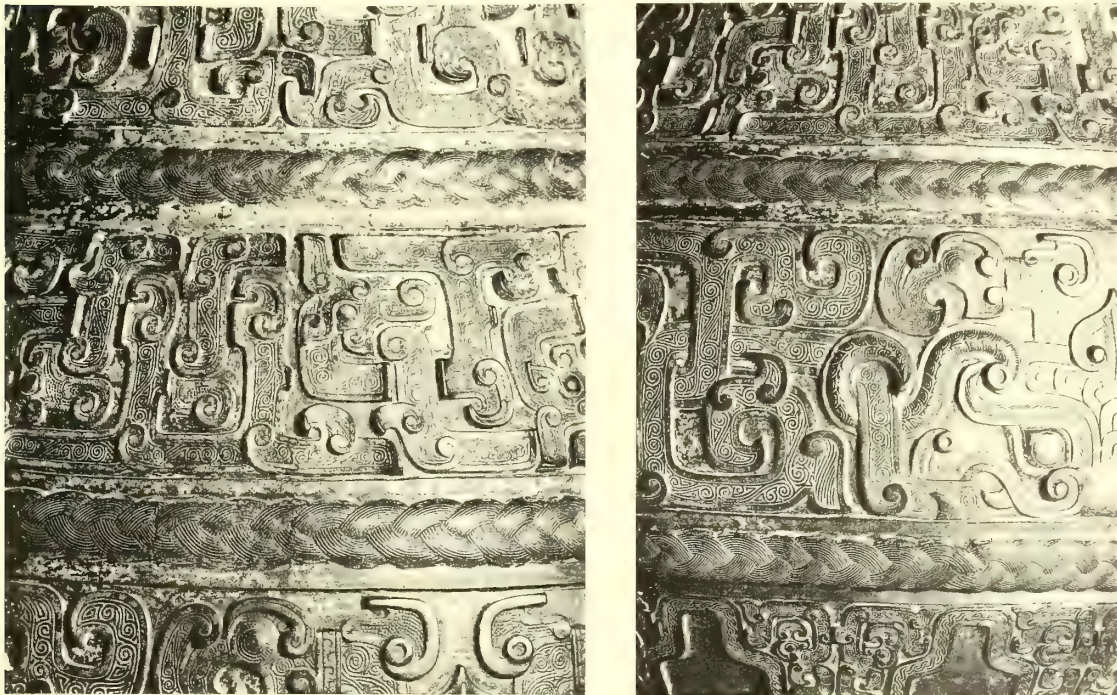


FIGURE 47

Details of body decor

³¹⁸ Yetts, *The Cull . . .*, pp. 45–75, Pls. XVI–XVII.

³¹⁹ Umehara, *Sengoku . . .*, fig. 5 and Pl. VI, no. 1. See also Chan Hui-chüan, *Ancient relics . . .*, Pls. 87 and 89.

NUMBER NINETY-SEVEN

vessel may have been provided with a lid, and perhaps with a foliated circlet of the type seen on the Cull *hu*. The extraordinary fineness and precision of decor, combined with the unusually good state of preservation, make it one of the outstanding monuments of this style.

TECHNICAL OBSERVATIONS

The vessel, except the handles, is cast in one piece. Just to the left of each handle a vertical low sharp ridge cuts across all of the decor bands. It is not certain that these lines are the joins of a two-piece mold because in each of the horizontal braid pattern bands there are similar join marks, two to six in number and unevenly spaced. There are no corresponding joins in the wide bands of entwined hook and volute decor between the rows of braid. This suggests that the vertical ridges are not joins of a piece mold but joins of the pattern or model assembly.

Under the bulge may be observed marks that are perhaps tool marks made in the model material when leveling of the relief to the plain surface was done. On the inside wall of the vessel and corresponding to the lower edge of the third rope pattern from the top is a distinct circular raised "join line" which may indicate juncture of a two-part model.³²⁰ This is quite unusual. No chaplets are in evidence.

The two animal handles, which are cast separately, are fixed to the vessel in a peculiar manner. They are not solid metal but contain baked clay cores which are completely surrounded by metal except for the small holes that pierce completely through the cheeks of the animal heads, and another hole through the curl of the tail. The paired feet of the animals provide but small contact area between handle and vessel. At the join juncture there is irregular overflow of metal from vessel to handle which indicates the handles were prefabricated and the vessel was cast *to* them. There is no evidence of hard solder at the join (*fig. 48*). Inside the vessel opposite the handle joins the surface is smooth and uninterrupted. Another unusual feature of the handles is the presence of

³²⁰ On June 27, 1964, through the kindness of Mr. and Mrs. A. E. K. Cull, I had the opportunity to examine the two famous *hu* at their home, Warfield House, Bracknell, Berkshire, England. There is no trace of the horizontal join so clearly evident inside our *hu*. Both the Cull *hu* are completely smooth inside. On the outside, vertical mold-join marks are clearly seen under each handle.—J.A.P.



FIGURE 48

metallic copper inlaid in the deeply modeled lines of the sunken decor. This seems to be in the form of flat strips which in places are double strand and folded or looped back. The inlay is coppery in color and little corroded.

The surface of the vessel is covered mostly with dark gray lustrous patina splotted irregularly with bright green pebbly malachite. There are no earthy accretions in the sunken decor, but a ring of hard clay inside the foot may be residue of the original clay core. In general the condition of the piece is excellent.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 68.8%; Sn 10.5; Pb 18.3; Total 97.6.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.1; Co 0.03; Ni 0.07; As 0.5; Sb 0.2; Bi <0.03; Al <0.001; Mg 0.001; Si 0.002.

Fang-hu

Late Chou dynasty (5th–4th century B.C.)

No inscription

Height, 37.2 cm. (14 $\frac{5}{8}$ in.)Width, 22.5 cm. (8 $\frac{7}{8}$ in.)

Weight, 4.03 kg. (8 lbs., 14 oz.)

Accession number 56.15

The rectangular vessel on a high foot is decorated all over with hunting scenes in horizontal bands in low relief on a flat ground. On the neck are four pairs of confronted birds with snakes in their mouths, and on the base are four pairs of volutes and triangles in vestigial dragon form. The flat bands separating the zones are decorated with swastikas; on the shoulders on two sides are animal masks in relief from which depend loose ring handles. The surface is covered with an even grayish green patina marred only by small areas of corrosion.



NUMBER NINETY-EIGHT (56.15)

NUMBER NINETY-EIGHT

STYLE AND CHRONOLOGY

The “hunting-style *hu*” of which this vessel is an example comprise a large family. Their dating has not yet been precisely established. Pictorial designs composed of figures and animals in silhouette arranged in flat patterns, with the individual units repeated many times presumably by stamp or stencil, are found on vessels otherwise attributable to around 500 (see the discussion of the *chien* No. 95). Apparently the “hunting *hu*” appeared about that time and extant examples date from the fifth and fourth centuries; and one excavated at T’ang-shan Shih in Hopei Province is assigned to the early fifth century,³²¹ a convincing suggestion in view of its similarity to *hu* from Li-yü, of that date or a bit earlier.³²² On the piece from T’ang-shan Shih, the design elements are more widely spaced and freely arranged than on the commoner, probably later, type of which ours is representative. On vessels of this later type, the design areas are tightly composed, but rather with a sense of *horror vacui* than of any true pictorial organization. The silhouette figures conform more rigorously to a pervasive style with emphasis on undulating contour.

At least three known *hu* have virtually identical designs in all zones from top to bottom.³²³ All, however, are round rather than square in section. Several *hu* featuring some of the same motifs, although in different arrangements and with different decorative patterns in the intervening bands, were found at Liu-li-ko though unfortunately not in a context that provides any clue to their date.³²⁴

The significant fact about the decorative patterns accompanying the hunting scenes on all these vessels is that for the most part, they do not belong to the Chinese repertory of bronze ornament. On ours, the band of open triangles and curls around the foot, rendered in broad, longitudinally divided bands, is obviously a survival of middle Chou style.

³²¹ Watson, *Archaeology in China*, p. 27–8, and Pl. 86.

³²² Umehara, *Sengoku . . .*, Pl. XVII and Pl. XVIII, no. 1.

³²³ In the Pillsbury Collection, Minneapolis (Karlgrén, . . . *Pillsbury . . .*, No. 53, pp. 142–3 and Pl. 73); the Kunstindustrimuseet, Copenhagen (Watson, *Ancient Chinese bronzes*, Pl. 70a); and the Virginia Museum of Fine Arts, unpublished. The designs are described in detail by Karlgrén.

³²⁴ Kuo Pao-chün, *Shan-piao-chen . . .*, Pls. 91, 93, 103.

But the vertically opposing V-shapes at the corners, and the swastika-like designs in all the other bands, are foreign to traditional Chinese style. Karlgren's statement that the latter is "merely a corruption of the well-known whorl circle" is unconvincing; both the gap of centuries separating them from the disappearance of the whorl circle in Western Chou, and their lack of real likeness to that motif, argue against it. Watson has pointed out that several hunting-style vessels are associated, either by provenance or by inscription, with the ancient state of Yen in Hopei Province, which was in early contact with the nomadic tribes living farther north.³²⁵ These alien-looking designs, peculiar to the hunting-style vessels, as well as the hunting scenes themselves, are probably influenced by or partly derived from the art of those northern nomads.

TECHNICAL OBSERVATIONS

The vessel is cast, but there are no vestiges of mold marks. Around the edge of each *t'ao-t'ieh* escutcheon is slight evidence of a join indicating these were separately cast and joined on. The handle rings appear to be continuous. The bottom is a sheet of metal with neat ribbons of locking overflow of the vessel metal visible on both sides. There appears to be a seam where the body metal meets the bottom. This construction suggests that the vessel might have been cast on to the bottom. At the square corners, there are V-shaped motifs, which straddle the corner; but they show no sign of join or register. There is a rough edge on the inside of the rim, and the edges around the ring hole of the escutcheons are rough and unfinished. Scratch marks of finishing tools are prominent. It should be noted that, while the main decor is in low relief, the swastikas of the horizontal bands are cast in intaglio.

Some of the surface is covered with genuine thin gray-green patina of copper and tin alteration products, but large areas bear artificial painted patina applied probably to conceal metallic surface. Some earthy residues, however, remain in the recesses. Except for a small hole about 0.5 cm. in diameter near the middle of one side, the vessel is in good condition.

³²⁵ Watson, *Archaeology in China*, pp. 27-8; cf. also *Ancient Chinese bronzes*, p. 60.

NUMBER NINETY-EIGHT

Composition : Sample taken from edge of foot.

Wet chemical analysis: Cu 78.0%; Sn(+Sb) 7.2; Pb 12.6; Total 97.8.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.009; Co 0.03; Ni 0.2; As 0.1; Sb >1; Bi 0.03; Al 0.002;

Mg <0.001; Si 0.03.



Detail of decor on side of vessel

Hu

Late Chou dynasty (late 5th–4th century B.C.)

No inscription

Height, 26.1 cm. (10 $\frac{1}{4}$ in.)

Width, 18.1 cm. (7 $\frac{1}{8}$ in.)

Weight, 1.81 kg. (4 lbs.)

Accession number 24.12

The round vessel with two small loop handles high on the shoulder is decorated with two bands in intaglio and low relief. Around the shoulder on a ground of tightly drawn rectangular *lei-wen* are three pairs of confronted birds. The left-hand one of each pair has a snake in its mouth; and on all birds the eye, the wing joint, the leg joint, and the tail carry raised sockets inlaid with turquoise. The lower band consists of tightly interlaced dragon forms, and from this depend a series of hanging blades each decorated with interlocking dragons. A single annular loop is fastened near the bottom on one side between the two handles above. The brassy metal is covered with an even dark green patina with a dull surface on which are areas of malachite and cuprite encrustation and some earthy accretions. A large repair on the base of one side seems to have been made in ancient times.



NUMBER NINETY-NINE (24.12)

NUMBER NINETY-NINE

STYLE AND CHRONOLOGY

Hu of this general shape seem to range in date from the seventh through the third century; the present example is from the latter part of this period although not the very end. Earlier pieces have, for one feature, more markedly flaring tops. Three examples, predecessors of ours, are in the National Palace Museum, Taiwan.³²⁶ All have bird-dragon creatures, similar in style, represented on their shoulders rendered, however, in sunken line, on a bare ground, whereas ours are raised slightly above a ground of *lei-wen*. One of the vessels shares the inset discs of turquoise in the eyes and on the flanks of the creatures. Another is still fitted with a chain handle, attached to the shoulder rings; all presumably had handles of this type in their original condition.

The decor in the zones of these three vessels appears at first sight to be virtually the same as that on ours, but proves on closer examination to differ from it significantly. Here the designs are completely abstract, densely packed rectangular spirals in the upper zones and interlocked angular S-forms in the lower. On the earlier pieces, the similar all-over patterns still retain vestiges of their origin in interwoven "dragon" designs, the bands crossing each other and ending in highly simplified heads with eyes. The same is true of the ostensibly similar patterns on bronzes from Hsin-cheng³²⁷ and the tomb of the Marquis of Ts'ai at Shou-hsien.³²⁸ The dating of the former site is still very problematic; objects from the latter are believed to range from the late sixth into the fifth century.³²⁹ The decor on the present *hu* indicates a date somewhat later than these, perhaps the later fifth or fourth century.

TECHNICAL OBSERVATIONS

The vessel was cast in a single piece, apparently in a three-piece, six-division mold. The vertical mold marks on the thirds show plainly, but those between the confronted birds are faint. The ring handles on the

³²⁶ *Ku-kung t'ung-ch'i* . . . , II, B. Nos. 291, 292, and 293. The first also in Jung, *Pao-yün-lou* . . . , 86, and the second also in *Wu-ying-tien* . . . , 113.

³²⁷ Sun Hai-p'o, *Hsin-cheng-i-ch'i*, pp. 82-3.

³²⁸ *Shou-hsien Ts'ai-hou* . . . , e.g. Pls. 80, 81.

³²⁹ The dating of Ch'en Meng-chia, accepted as most plausible by Soper, . . . *Marquis of Ts'ai*, p. 156.

neck and the single extra ring handle at the bottom appear to be cast in, but show no mold marks. The most interesting feature is the rather crude "cast-on" repair on the lower side. The patch was made to mend either a large casting flaw or a long crack that occurred after casting. The repair is simply a ribbon of bronze metal which has been caused to flow into the crack and to lock in place by overflowing the edge inside and out. The upper end of the repair metal terminates in a flattened blob of metal which bears the stump of a small sprue. On the inside opposite the sprue is another corresponding flattened blob of metal. The repair is crudely made with no attempt at concealment or fine finish, which perhaps indicates that the repairs were made long after fabrication. There are, in addition, two smaller crude repairs on the bottom.

The turquoise jewels, which were 24 in number, are held in sockets or bezels cast in the vessel. Each jewel is 3.5 mm. in diameter and is set nearly flush with the edge of the bezel. Some of the jewels are lost.

The surface is covered with thin dull green patina, mostly malachite and cuprite mixed with earth and limy deposits. Much loessy earth still clings to the inside. There is a dent in the side which might have been caused by a blow or a fall in antiquity.

Examination in ultraviolet light revealed an area about 10 cm. across on the upper part of the vessel that is painted with modern paint which has since been removed with organic solvents. Beneath it the metal surface is bright and lustrous and apparently had never corroded. The paint was probably applied in the market to give the surface a uniformly old appearance.

Composition: Sample taken from edge of bottom.

Wet chemical analysis: Cu 73.0%; Sn 9.8; Pb 15.6; Total 98.4.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.03; Co 0.02; Ni 0.05; As 0.2; Sb 0.1; Bi 0.05; Al 0.002; Mg < 0.001; Si 0.05.

Fang-hu

Gift of Mr. and Mrs. Eugene Meyer

Late Chou dynasty (4th century B.C.)

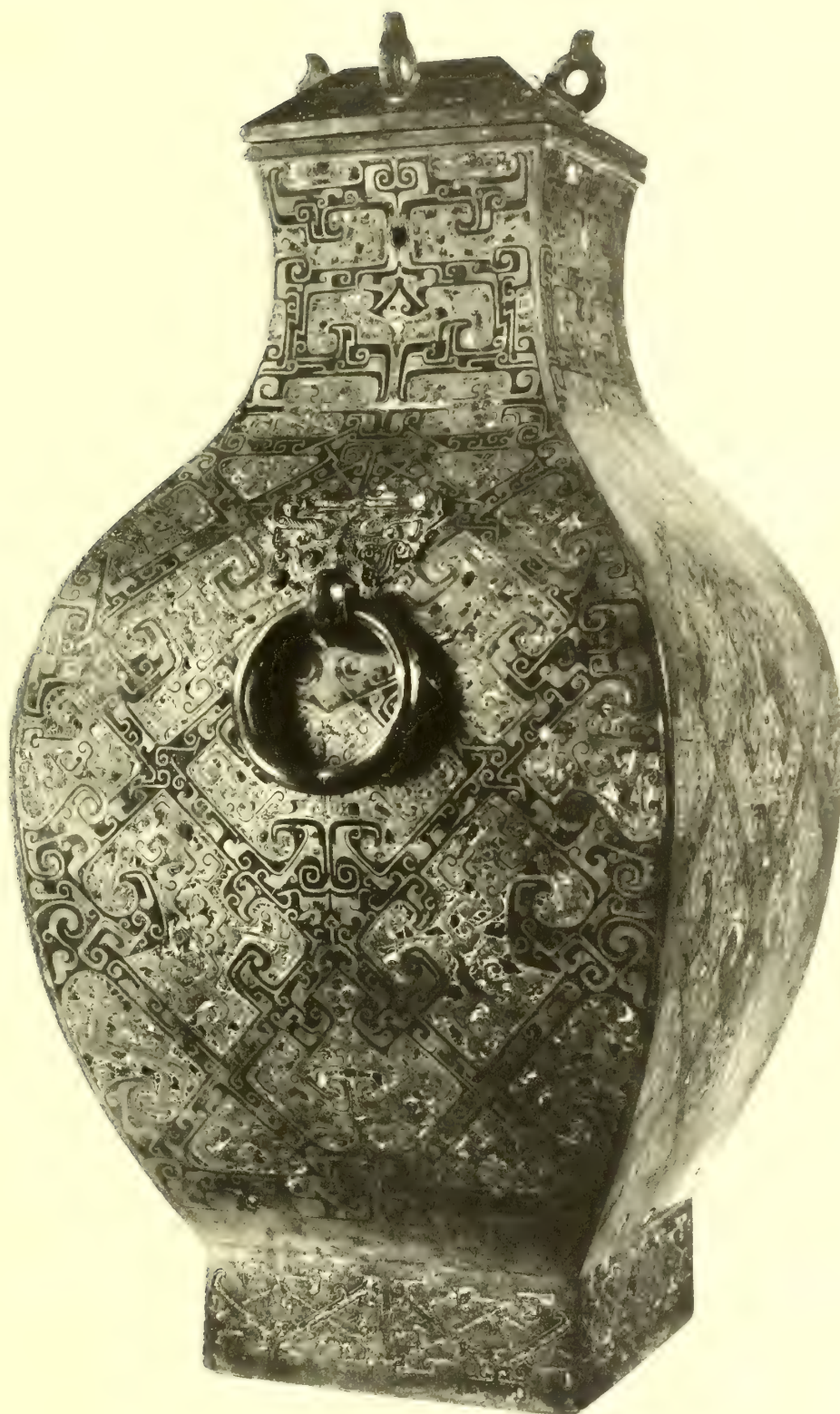
No inscription

Height, 52.6 cm. ($20\frac{3}{4}$ in.)Width, 27.8 cm. ($10\frac{7}{8}$ in.)

Weight, 10.12 kg. (22 lbs., 5 oz.)

Accession number 61.32

The large square vessel with cover has animal mask escutcheons with pendant loose rings on two sides. The whole surface is elaborately decorated with a broad bold geometric pattern the flat areas of which are broken up by an arrangement of extremely fine spirals, hooks, volutes, etc. This pattern appears to have been executed by cutting out the surface of the bronze and inlaying it with copper and silver and bits of malachite. On the lid are four standing rings to serve as feet when inverted. The whole surface has been polished in the Chinese manner.



NUMBER ONE HUNDRED (61.32)

NUMBER ONE HUNDRED

STYLE AND CHRONOLOGY

Following the decline and virtual disappearance of relief decor during the fifth and fourth centuries, flat, linear patterns came into fashion, either rendered in quasi-engraved, sunken line, or inlaid in copper, silver, and gold. In addition, crushed malachite is occasionally used as a filling for some areas. Decor in zones around the vessel body gives way to designs that cover the entire body, often divided diagonally into lozenges and triangles.

The *fang-hu* or square *hu* is a form limited to the middle and late Chou periods. Our other example, the "hunting-style" *hu*, has already been described; it is similar in shape to the present piece and probably not far separated from it in time.

The design is one of extraordinary complexity and sophistication. It is not composed in the traditional manner with distinct forms set against a ground, but is made up of interlocked shapes of equal value, the intervals between areas of inlay calculated as carefully, in dimensions and shape, as the inlay itself. Spirals and hooks dominate; the line moves with a swinging rhythm, proceeding only a short distance in any direction before being compelled by the inherent rules of the style to curl upward, double back, curl again, and so on through elaborate permutations of a basic set of movements, producing a pattern as intricate and formal as a dance. The elements of this stylistic repertory derive ultimately from the dissolution of the dragons of earlier stages, and suggestions of horns, eyes, and snouts may still be recognized in them, even though they are by now essentially abstract.

Of related vessels, the most famous, and justly so, is in the University of Pennsylvania Museum, Philadelphia.³³⁰ It is graced with a design of even higher sophistication, featuring a complex play of diagonals set at varying angles, which end in curls and spirals as on the present piece. The design is less clearly partitioned in the Philadelphia *fang-hu*, continuing without interruption onto the neck. It is rendered in raised, flat

³³⁰ Umehara, *SKS/E*, III, 213; Andersson, *The goldsmith . . .*, pp. 24-29 and Pl. XIX. A similar *fang-hu* was among the bronzes reportedly found at Chin-ts'un; see White, *Tombs of old Loyang*, Pl. CIX.

ridges, with the spaces between filled with chips of malachite. An inscription on the base probably refers to a military expedition that took place in the year 279;³³¹ this inscription is engraved, however, and the vessel could be somewhat older. Similar in technique but likewise lacking the inlay of precious metals is the square *hu* in the Pillsbury Collection; the *fossae* of the design, now empty, presumably held crushed malachite as on the others.³³² A design more closely related to that on the present *fang-hu*, although simpler, is to be seen on a well-known *tui* in the Winthrop Collection, at the Fogg Art Museum.³³³ These pieces are commonly dated to the fourth century, and considering their position in the evolution of late Chou bronze styles, and the *terminus ante quem* provided by the inscription on the Philadelphia piece, this seems the proper dating.

TECHNICAL OBSERVATIONS

The vessel is cast with walls about 3 mm. thick. Absence of parting lines at the corners or elsewhere may indicate that it was not cast in piece molds. Like many other bronzes of this type, there is a low irregular ridge on the underside which appears to be the stump of a sprue. The inside of the foot has a turned-over rim, and the recess of the foot is partially filled with hard clay residues of the original upper mold core. Fracturing of this clay material apparently occurred before or during casting, and into the fissures thus formed flowed the molten metal of which the corroded remnants now remain. Chaplets are visible in the plain areas just above the foot, and along one side of the vessel three chaplets have loosened and fallen away. Other chaplets may be hidden in the inlay grooves.

The finely modeled *t'ao-t'ieh* mask escutcheons, were separately cast on to the already fabricated vessel. On the inside, opposite the nose loops of each escutcheon is a boss or short stump crossed vertically by a low ridge. The wall of the vessel must have been perforated to permit mechanical locking. The masks do not seem to have fused with the

³³¹ Andersson, *op. cit.*, p. 27.

³³² Karlgren, . . . *Pillsbury* . . . , No. 54, Pl. 74.

³³³ Umehara, *SKS/E*, III, 215.

NUMBER ONE HUNDRED

vessel wall, hence the mechanical join is the principal means of attachment. One of the handle rings is decorated, and there is evidence of a join; but how it was made is not certain. The other ring is undecorated and appears to be a replacement.

Inside of the four rings on the lid are clear mold marks, and underneath the lid is a single depression which coincides with one of the rings. These features might suggest that the rings were cast separately, but at the juncture of the rings to the top there is no evidence of a seam or join so the rings and lid appear to have been cast integrally.

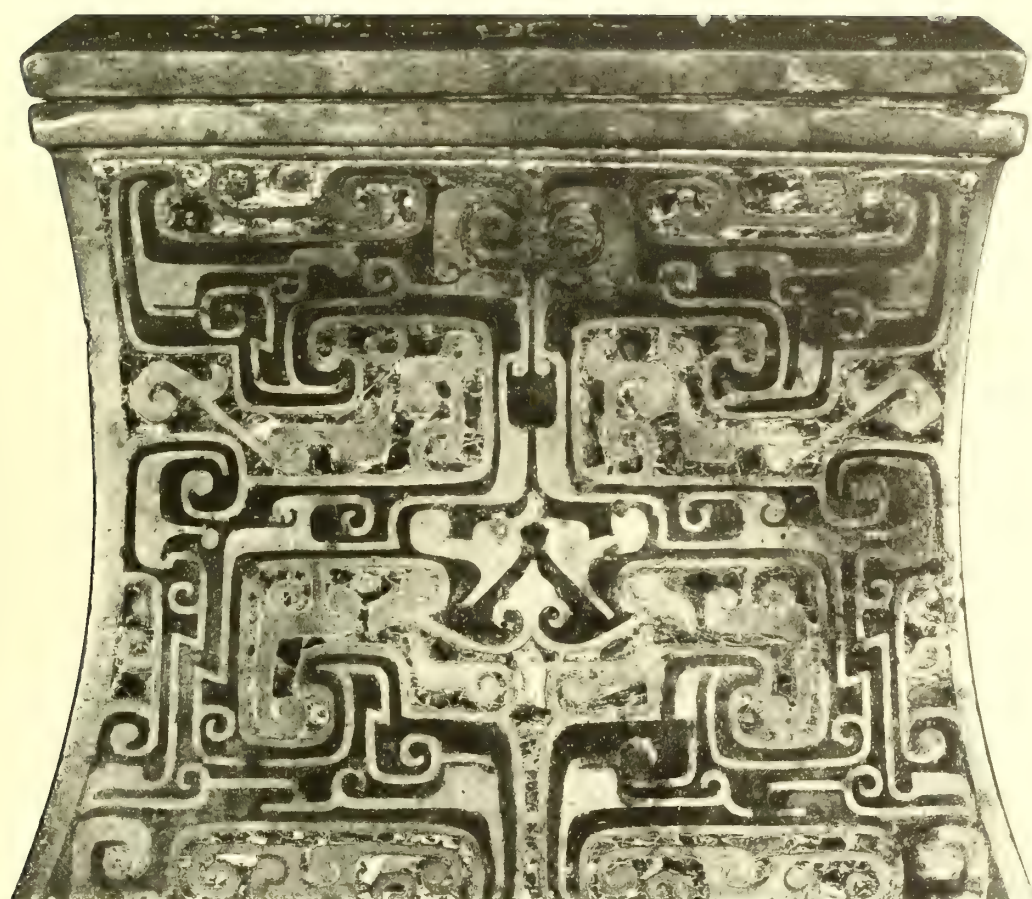
The surface of all sides and of the cover are inlaid with copper wire or strips and with small chips of malachite which show the typical banding of that mineral. Where scattered bits of malachite are missing the channels are seen to be about 1 mm. deep. The copper inlay is in the form of parallel strips turned at the ends of the channels and looped back as many as six or seven times. The deeper channels for the strips appear to be cast in, not cut. The copper inlay goes underneath the edges of the *t'ao-t'ieh* escutcheons indicating that the escutcheons were fixed in place after the copper. Unlike the copper, the malachite inlay stops short of the masks which indicates it was put in place later to avoid damage from heat of casting.

Except for a thin tarnish over the bronze surface and the copper inlay, there is hardly any corrosion on the exterior. There is heavy malachite encrustation, however, on the inside of the cover and to some degree on the inside of the vessel and foot. That inside the cover is distinguished by its fibrous structure which is not rare in nature but seldom seen on artifacts. On one side the vessel is creased and caved in, and there is a small triangular loss on the edge of the foot and a break at one corner which has been repaired with soft solder.

Composition: Sample for analysis taken from edge of foot.

Wet chemical analysis: Cu 78.0%; Sn 15.3; Pb 2.4; Total 95.7.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.03; Co 0.02; Ni 0.07; As 0.1; Sb 0.03; Si 0.02.



Detail of decor on side of neck (slightly enlarged)

Pien-hu

Late Chou dynasty (late 4th–early 3rd century B.C.)

No inscription

Height, 31.2 cm. (12 $\frac{1}{4}$ in.)

Width, 30.5 cm. (12 in.)

Weight, 5.24 kg. (11 lbs., 9 oz.)

Accession number 15.103

This flat type of vessel is known as a *pien-hu*, and in style and decoration it is very much like the preceding. The geometric pattern that covers the surface is inlaid in silver, and the bronze is evenly covered with a dark brown patina showing some areas of malachite encrustation. It appears to have been polished by earlier Chinese collectors as in the previous case.



NUMBER ONE HUNDRED ONE (15.103)

STYLE AND CHRONOLOGY

The *pien-hu* or flat *hu*, of which this is a notable representative, does not make its appearance until near the end of the Chou period, probably not before 400.³³⁴ The majority of published examples have the two oval faces of the body divided into rectangular areas, staggered on successive levels like brickwork, and each of these rectangular areas filled with a form of the “teeming hook and volute” design.³³⁵ This design is clearly an outgrowth of that seen on the famous *chien* formerly in the Oeder Collection and the Berlin Museum, a vessel datable by its inscription (which mentions the same King Fu-ch'ai, reigned 495–473, as the inscriptions in the Cull *hu*) to the first half of the fifth century.³³⁶ It is hard to imagine that the pattern as it appears on the *pien-hu* can be separated from this by much more than a century.

On the neck of one of these *pien-hu* with relief decor (the one in the former Pilster Collection) there is inlaid in gold and silver a design of a type extremely popular during the last two centuries of the Chou dynasty, the so-called diagonal-and-curl motif. It is commonly used in friezes on inlaid vessels. A variant of it appears on the neck of the present piece, and the main decor of the body is in fact an expansion of the same motif, freed from the restraints imposed by horizontal boundaries, over a larger surface. Like the design on the previous *hu* Number 100, it is intricate and highly sophisticated; the only easily definable principle behind its composition is that of bilateral symmetry. A squatter vessel, round in section, with silver-inlaid decor so closely related as to suggest that the two pieces belonged originally to a single set, was formerly in the possession of C. T. Loo, Paris.³³⁷ Here, however, the design is of a simpler nature, repeating at intervals around the body, as is characteristic of decor in continuous zones; the more elaborate patterns with less of discernible repetition are permitted by the broader, bounded

³³⁴ Watson, *Ancient Chinese bronzes*, p. 35, Pl. 67b, in the Mount Trust, England.

³³⁵ Other examples in the Tenri Museum, Nara (Mizuno, *In shū* . . . , Pl. 147); the former Pilster Collection, Berlin (Sullivan, *An Introduction to Chinese art*, Pl. 19); and the Verburgt Collection, The Hague. (Umehara, *SKS/E*, III, 187.)

³³⁶ Karlgren, *Yin and chow* . . . , C183, Pl. LII, and p. 72. This *chien* has not been seen since it was removed from Berlin by the Russians in 1945.

³³⁷ Umehara, *SKS/E*, III, 220.

NUMBER ONE HUNDRED ONE

faces of the *fang-hu* and *pien-hu*, and so appear chiefly on those vessel types.

TECHNICAL OBSERVATIONS

The vessel, except for the handles and escutcheons, is cast in one piece, probably not in a piece mold. There is no evidence of mold marks on the vessel proper. On the underside is a low ridge with rough upper edge which seems to be the stump of a sprue (see also *lien* No. 121). Also the underside bears a peculiar criss-cross in low relief, its meaning unknown. The handle escutcheons with the loops for the rings are cast separately, but are fixed so flush and tight to the vessel that the join and seam are barely visible. There is no evidence of hard solder or other means of attachment on the outside, but on the inside an irregularity in the metal surface opposite the upper stem of each nose loop indicates a perforation and stem-locking device. The handle rings are solid, not split. No chaplets are visible but some could be concealed under the broader areas of silver inlay.

Most of the pattern is inlaid with thick silver foil. There is so little loss of inlay it is hard to tell how it is secured, but presumably the edges of the silver are set into grooves and undercuts chiselled into the bronze. The inlay on the base is made of fine silver strips also set into narrow grooves. The silver inlay runs under the handle escutcheons indicating they were attached after the vessel was decorated. The vessel is fairly well finished on the inside, although the surface here is encrusted with earthy residues.

The bronze was apparently buried and formerly much corroded, but the surface has been scraped and abraded to uncover the silver. There is a considerable amount of malachite and cuprite under the silver. The smooth whitish deposit on one side below the neck is calcite. There is an irregular crack and break on one side as if the object had been struck a hard blow; a small bit of the inlay in this region is displaced and lost; otherwise, the object is in excellent condition.

Composition: Sample taken from base.

NUMBER ONE HUNDRED ONE

Wet chemical analysis: Cu 81.8%; Sn 2.5; Pb 11.7; Total 96.0.

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.006; Co 0.06; Ni 0.1; Sb 0.005; Bi 0.2; Al 0.001; Mg 0.001;
Si 0.002.

The low tin content of the vessel is noteworthy.

P'ou

Late Chou dynasty (5th century B.C.)

No inscription

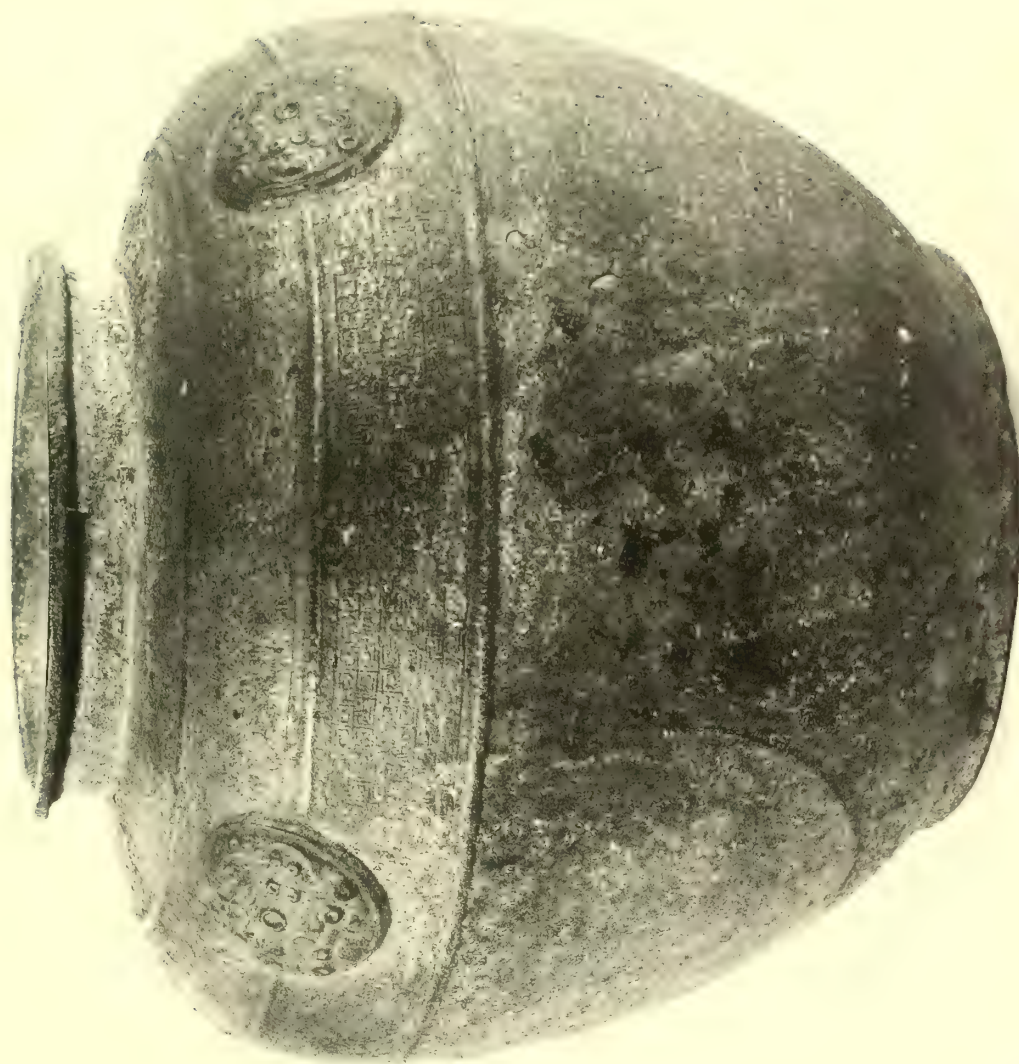
Height, 27.0 cm. ($10\frac{5}{8}$ in.)

Width, 32.0 cm. ($12\frac{5}{8}$ in.)

Weight, 5.19 kg. (11 lbs., 7 oz.)

Accession number 09.280

Around the shoulder are two bands of decoration, a series of hanging blades above a band of highly stylized interlacing dragons. Four round bosses are symmetrically placed around the vessel in the middle of the two bands; these are hollow on the inside and decorated with interlocking dragons on which are small, circular, socket-like areas which may once have contained malachite or turquoise or some other decorative material. The whole vessel is evenly covered with a heavy greenish encrustation that makes the design almost illegible in many areas.



NUMBER ONE HUNDRED TWO (09.280)

NUMBER ONE HUNDRED TWO

STYLE AND CHRONOLOGY

A similar *p'ou* was found at Hsin-cheng; it differs chiefly in the number of raised roundels in the shoulder band, and in minor details of decor, and must be approximately contemporary.³³⁸ As noted in connection with the *kuei*, Number 82, Hsin-cheng provides only the most general kind of dating; the earliest pieces go back probably to the eighth century, while the latest are of fifth century. The *p'ou* in question fits better into the later part of this period, with its band of decor consisting of close-packed rectangular units, each formed from the compression of a strap-work dragon. This decor, also seen here, is associated with bronzes of the fifth century, among them those from Shan-piao-chen; two more *p'ou* of related shape were found in the Marquis of Ts'ai Tomb.³³⁹ Like the example from Hsin-cheng, they have eight shoulder roundels, but have in addition on their shoulders loop handles surmounted by masks of horned beasts, as well as pairs of rings to which chain handles are attached. All three have lids, as ours presumably did originally.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece; mold marks just under the lip indicate it was probably directly cast in a four-piece mold. Join traces are evident as disparities through the decor bands. The four large bosses on the shoulder of the vessel have corresponding depressions on the inside. There is no evidence of seams at the edges of the bosses, hence they appear to be cast as integral parts of the vessel. The bottom is slightly depressed underneath; otherwise it is featureless. There is slight evidence of chaplets but corrosion makes their detection difficult.

The center of the small circlets in the decor of the bosses and some lines of the sunken decor are filled with a black material which may be residues of an inlay or filling. The rather uniform layer of dull green corrosion tests strongly for lead although lead content of the alloy is not

³³⁸ Sun Hai-p'o, *Hsin-cheng-i-ch'i*, No. 86.

³³⁹ *Shou-hsien Ts'ai-hou* . . . , Nos. 21 and 28.1, Pl. XII.

NUMBER ONE HUNDRED TWO

high. The metal of the vessel, both sides and bottom, has a number of blow holes and other casting flaws; a few of these are plugged with soft solder and painted over. They are obviously modern repairs.

Composition : Sample taken from edge of foot.

Wet chemical analysis: Cu 79.4%; Sn 8.9; Pb 7.6; Total 95.9.

Additional elements estimated by emission spectrometry: Ag 0.1%;
Fe 0.07; Co 0.001; Ni 0.009; As 0.3; Mg <0.001; Mn <0.001;
Si 0.1.

Tun

Late Chou dynasty (late 6th–early 5th century B.C.)

No inscription

Height, 15.5 cm. ($6\frac{1}{8}$ in.)

Width, 16.2 cm. ($6\frac{3}{8}$ in.)

Weight, 1.05 kg. (2 lbs., 5 oz.)

Accession number 32.13

The oval shaped covered vessel has three ducks in the round sitting on the lid and two annular handles protruding from the long sides. Around the neck and the main part of the body are two bands of interlocking dragons. Four very small monster masks are cast at the four quarters of the lid and hang down over the edge to hold the latter in position on the vessel. The grayish metallic patination is covered with patches of azurite, malachite, and cuprite inside and out.



NUMBER ONE HUNDRED THREE (32.13)

NUMBER ONE HUNDRED THREE

STYLE AND CHRONOLOGY

This handsome small vessel was reportedly found at Li-yü in Shansi Province, and was published as such by Umehara and Mizuno.³⁴⁰ It may be the “incense burner” (*brule parfums*) mentioned as being in the Freer Gallery in George Salles’ article on the Li-yü find.³⁴¹ Another piece related in shape but without rings appears among the Li-yü bronzes photographed at the site by the dealer Charles Wannieck.³⁴² A tripod from the same find has on its lid three similar ducks, and the main bands of decor on the two vessels appear to be virtually identical.³⁴³

As noted in the discussion of the *ting* Number 96, the bronzes of Li-yü cannot be dated very precisely. The most likely date for them is the late sixth century, but the style may extend into the fifth. A piece of similar shape is in the Brundage Collection (B60.B75); the decor, a degenerate form of the Huai style, would lead to a dating in the fifth century. Another example, evidently with openwork on the base and the disc-shaped handle on top, was published by Umehara.³⁴⁴ Apart from these, no other examples are known to us of vessels in this shape, which was apparently short-lived.

TECHNICAL OBSERVATIONS

The vessel and lid each appear to be cast in a single piece, but the method used to cast them is not certain. The engaged ducks on the lid each bear mold marks along the median line under the tail and bill, but they show no seam where they join the lid. The small lid-edge stops in the form of animal heads are cast as integral parts of the lid. Likewise, the ring handles appear to be cast as integral parts of the bowl since exploration of the joins discloses no evidence of seams or spill-over metal. There are, however, parting lines, more in the nature of mold join marks along the edge of each handle, and there is evidence of a mold join line along the

³⁴⁰ Umehara, *Sengoku . . .*, Pl. VII; Mizuno, *In shū . . .*, Pl. 132.

³⁴¹ Salles, . . . *Li-yü*, p. 158.

³⁴² *Op. cit.*, Pl. L, center right. A similar piece – or the same, with handles added? – in Umehara, *Kodōki . . .*, Pl. V, No. 10.

³⁴³ Salles, *op. cit.*, Pl. XLIII, top.

³⁴⁴ Umehara, *op. cit.*, Pl. XXVI, No. 2.

outer edge of the foot rim. The vertical lines at the bowl ends which divide the decor bands in halves appear to be joins in the pattern, not mold join marks. No chaplets are visible.

Outwardly the low sunken decor has an engraved look but under low magnification it appears truly cast; the finish and polishing down produces sharp edges with resulting engraved appearance. In places the sunken lines are filled with a black substance which is quite hard; it is neither niello nor carbon black, but may be dark cuprite. Much of the surface retains a dull pewter-like metallic lustre. On the inside the bronze surface has an untarnished and satin-like finish, as it must have had when it left the hands of its maker. The exterior surface and some of the interior is irregularly splotched with corrosion products including malachite, azurite, cerussite, and cuprite. The lid has suffered more from corrosion inside and out than has the vessel; also it is damaged along the rim where a piece about 7 cm. long and 3 cm. wide has broken away.

Composition: Sample taken from rim.

Wet chemical analysis: Cu 70.2%; Sn 14.3; Pb 13.0; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.03; Co 0.02; Ni 0.05; As 0.3; Sb 0.2; Bi 0.03; Al 0.002; Mg 0.005; Mn < 0.001; Si > 1.

Tun

Late Chou dynasty (late 6th–early 5th century B.C.)

No inscription

Height, 15.0 cm. ($5\frac{7}{8}$ in.)

Width, 22.2 cm. ($8\frac{3}{4}$ in.)

Weight, 2.66 kg. (5 lbs., 14 oz.)

Accession number 38.7

This covered vessel has four monsters on the lid which serve as legs when the latter is inverted. Two animal mask escutcheons hold pendent rings on the sides. Lid and vessel each have three horizontal bands of decoration consisting of elaborately interlaced scroll forms inlaid in silver. A similar band surrounds the foot. A smooth, gray-green patina covers the whole vessel; and there are some areas of malachite encrustation.



NUMBER ONE HUNDRED FOUR (38.7)

NUMBER ONE HUNDRED FOUR

STYLE AND CHRONOLOGY

The shape is one that appeared only late in the Chou period. A covered vessel formerly in the Oppenheimer Collection, a probable predecessor, is decorated with a pattern sufficiently similar to the Li-yü style to suggest a date for it in the late sixth or early fifth century.³⁴⁵ Its top is surmounted by four simple rings, which on our piece are elaborated into the heads of beasts with curling crests. These bronze vessels are probably based on simple, low-footed, covered bowls of pottery, such as one excavated from a Warring States tomb at Chung-chou Lu near Lo-yang.³⁴⁶

The inlaid design on this *tun* belongs to the first style of the two that appear to be the main innovations of fourth century bronze decor, that in which "the units of the pattern are arranged symmetrically about a vertical or diagonal axis. They are drawn in straight lines with spiral ends, continuous with wider scrolled elements."³⁴⁷ Within this broad stylistic scheme, endless variations were possible so that resemblances, but seldom exact correspondence, occur in the decor on numerous vessels of the period. That on the present piece, for instance, resembles designs on inlaid *hu* vessels of around the same date,³⁴⁸ but less emphasis is placed on diagonal compartmentalization, presumably because the surface to be covered was smaller, and the need for strong, rigid design accordingly less. A *hu* published by Umehara, on the other hand, has decor arranged in zones, as on this *tun*, and the designs agree more closely.³⁴⁹ The derivation of these designs from animal ("dragon") forms which is by no means readily apparent in the end-products of the transformation, can be observed through transitional stages in which the elements, while on the verge of total abstraction, still retain some vestigial animal attributes. Examples include another *hu* published by Umehara,³⁵⁰ and the *tou* that follows, Number 105.

³⁴⁵ Umehara, *SKS/E*, III, 189.

³⁴⁶ *Lo-yang chung-chou-lu*, Pl. 77, no. 7.

³⁴⁷ Watson, *Ancient Chinese bronzes*, p. 64.

³⁴⁸ E.g. one in the Pillsbury Collection, Karlgren, . . . *Pillsbury . . .*, Pl. 74.

³⁴⁹ Umehara, *SKS/J*, V, 388.

³⁵⁰ *Op. cit.*, V, 386.

TECHNICAL OBSERVATIONS

There are no visible mold marks or sprues on the vessel proper, and the *t'ao-t'ieh* escutcheons are cast into the already completed vessel. Strangely enough the nose rings are from a second pour of metal which overflows the *t'ao-t'ieh* masks, and enters a perforation through the vessel wall to form a rivet-like locking plug on the inside. Both the handle rings are split. The ornate monsters on the lid have sharp ridges along the median lines that are clearly mold joins and are likewise cast in two-piece molds affixed by a similar locking cap of metal on the under surface which is clearly visible in one case although partially concealed by corrosion crusts. The underside of the bottom is featureless except for slight evidence of a mold join along the edge of the foot. The presence of these mold join marks underneath, the separate manufacture of handle



FIGURE 49

NUMBER ONE HUNDRED FOUR

escutcheons and lid monsters and the considerable thickness of the vessel walls suggest that the vessel was piece-mold cast. One chaplet under the body-bulge is plainly visible.

The entire surface of the cover and vessel is lavishly decorated with narrow inlaid silver strips now tarnished black. The silver is accentuated by cut-out areas which bear remnants of inlay made from chips of turquoise. The silver inlay runs completely under the escutcheon handles showing that the inlay was applied before the handles were fixed (*fig. 49*).

The surface is covered with gray-green tin-oxide patina, and scattered patches of malachite and cerussite, some of it covering silver inlay. The inside of both vessel and lid is covered with earthy residues mixed with copper green in which ghosts of a fine weave fabric pattern are visible.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 74.3%; Sn 12.0; Pb 8.9; Total 95.2.

Additional elements estimated by emission spectrometry: Ag 0.2%;
Fe 0.03; Co 0.001; Ni 0.02; Sb 0.03; Al 0.002; Mg 0.002; Mn < 0.001;
Si 1.0.



Detail of handle

Tou

Late Chou dynasty (4th century B.C.)

No inscription

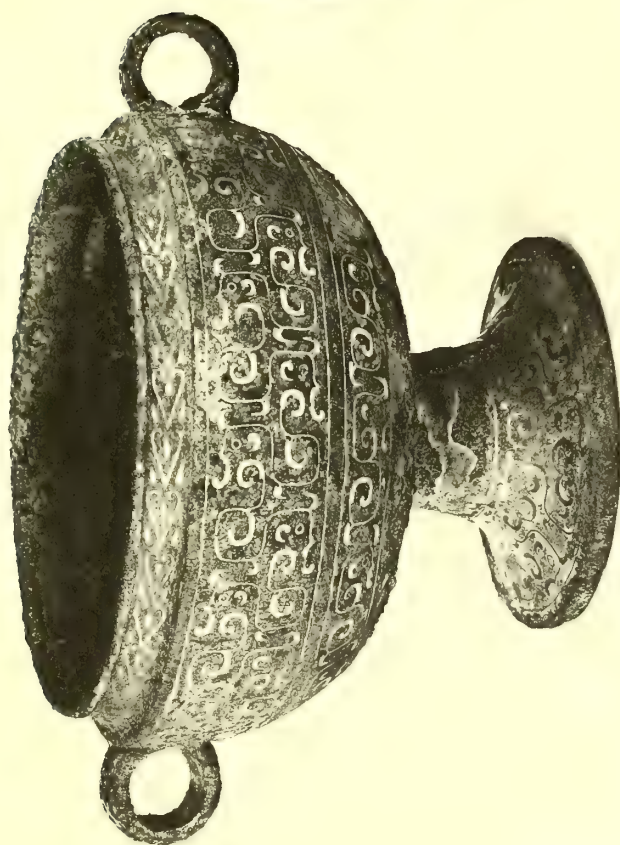
Height, 15.5 cm. ($6\frac{1}{8}$ in.)

Width, 18.7 cm. ($7\frac{3}{8}$ in.)

Weight, 1.56 kg. (3 lbs., 7 oz.)

Accession number 39.41

The lid has a low widely flaring finial which can serve as a foot when inverted; two vertical rings protrude from the sides, and the vessel rests on a high stem with flaring foot. Both vessel and cover are decorated with horizontal bands of vestigial dragon forms inlaid in gold, and a similar band surrounds the flaring part of the base. The surface is evenly covered with encrustations of malachite and some azurite.



NUMBER ONE HUNDRED FIVE (39.41)

NUMBER ONE HUNDRED FIVE

STYLE AND CHRONOLOGY

A *tou* of virtually the same shape was found in the Great Tomb (Tomb 1) at Shan-piao-chen, the contents of which are generally dated to the middle or later fifth century.³⁵¹ The main decor on that piece is a degenerate form of the Huai style, but the top of the lid handle features decor of the type associated with the Li-yü bronzes. No examples of *tou* of this shape with decor in styles earlier than that of Li-yü are known.³⁵² The form persists through the remainder of the Chou period, and goes out of fashion at the beginning of Han.

Of special interest in the gold-inlaid design is its clear derivation from the intertwined animal patterns that dominate bronze relief decor of the sixth and fifth centuries. A comparison of the principal decor band on this *tou* with, for instance, that on the *tun* Number 103, reveals that the gold design is a translation of the latter into a new medium, with the main configurations preserved but the elaborate fillings and other ornaments eliminated in a drastic simplification imposed in part, no doubt, by the limitations of the inlay technique. The snouts, eyes, and horns of the dragons are recognizable, but the rest is a play of lines and curls that retain the basic rounded-angular movement. This closer affinity with the Li-yü and other relief styles of bronze ornament sets the vessel apart from the more common inlaid pieces with completely abstract patterns, and suggests for it a slightly earlier date than, for example, the *tun* Number 104. A piece that represents a stage one step further on, where the decor preserves much of the same general character but has lost all animal traits, is a bronze tripod reportedly, found at Lo-yang, dating probably from the fourth century.³⁵³ Mizuno states that our *tou* was excavated at Hui-hsien, Honan Province, and assigns it to the middle of the Chan-kuo period.³⁵⁴

³⁵¹ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 12.

³⁵² E.g. Mizuno, *In shū . . .*, Pl. 136.

³⁵³ White, *Tombs of old Loyang*, Pl. CII.

³⁵⁴ Mizuno, *In shū . . .*, p. 137 and p. 31 of the Japanese text.

TECHNICAL OBSERVATIONS

Neither of the two members of the vessel shows evidence of mold marks, and apparently they were not cast in piece molds. The two ring handles seem to be cast as part of the vessel. There is no sunken decor, but the vessel and cover are lavishly decorated with intaglio designs inlaid with cut-outs of heavy sheet gold 0.3 to 0.5 mm. in thickness. The inlay is completely intact in spite of mechanical removal of the heavy corrosion crusts that apparently originally concealed it. It is impossible now to say whether the inlay grooves were cast in or incised after casting. The pedestal underneath is plain but clay core material still fills the interior of the stem.

Apparently the surface was heavily encrusted with copper corrosion products much as the interior surface is now. On the inside the corrosion crusts are formed in thick tilted rings which indicates that during the corrosion cycles, the vessel, lying at an angle, was intermittently partially filled with water. On the exterior most of these crusts have been cleaned away by former owners to reveal the gold inlay and the cuprite underlayer in which the inlay is now embedded. Much of the uncovered cuprite surface has been concealed once more by a kind of paint made from a mixture of coarse azurite and malachite mineral particles. In the gold-decorated area along the set-back of the rim this artificial encrustation has in turn recently been cleaned away to show the true condition.

Composition: Sample taken from rim of base.

Wet chemical analysis: Cu 93.3%; Sn 1.7; Pb 2.3; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.05; Co 0.001; Ni 0.09; Sb 0.03; Mg < 0.001; Si < 0.001.

An

Late Chou dynasty (5th century B.C.?)

Inscription of two characters

Height, 10.2 cm. (4 in.)

Width, 15.9 cm. ($6\frac{1}{4}$ in.)

Weight, 0.85 kg. (1 lb., 14 oz.)

Accession number 11.45

The elongated oval vessel has a vertical ring handle on one side and two small loops on the shoulder at the ends. A single band of tightly interlocking scroll patterns arranged in triangular fields surrounds the entire vessel. The surface is rough with malachite and cuprite encrustation, and there is considerable earthy accretion. Mr. Freer bought this piece from Sato of Nagasaki; and his comment was, "Beautiful and undoubtedly early; learn if Shang."



NUMBER ONE HUNDRED SIX (11.45)

NUMBER ONE HUNDRED SIX

STYLE AND CHRONOLOGY

The shape is uncommon, but belongs to the relatively large repertory of simple, practical vessels made by the late Chou bronze-casters. Shapes in this period were evidently governed by less rigorous canons than were those of the ritual bronzes of earlier centuries. An example with decor of an earlier style (6th century?) was published by Jung Keng, who calls it a *chih* rather than *an*.³⁵⁵ Several cups of similar form but differing in the size and placement of the ring handles were among the Hsin-cheng bronzes.³⁵⁶ Another, in the Royal Ontario Museum, Toronto, lacks the smaller rings. None of these provides any clue to dating.

The linear pattern in the band around the body is one of the myriad variants of the pervasive diagonal-and-volute mode that appear on late Chou bronzes.

TECHNICAL OBSERVATIONS

The vessel is probably cast by the direct method; but there are no visible mold marks except on the inside of the larger loop handle, which appears to be cast as one with the vessel. There is some evidence of chaplets. The inscription is in a peculiar location on the underside. This seems to be the clearest example we have of a genuine ancient bronze in which an inscription has been incised. The strokes of the characters are cut through the corrosion layers. Each scale of the fish appears as a separate plateau on which a top layer of cerussite with chipped edges lies over a layer of malachite. The sides of the stratified plateau and the bottoms of the strokes reveal the marks of a tool through a light coating of malachite.

The dull and rough corrosion crusts, which seriously obscure the fine-line sunken decor, are mostly copper and lead carbonates mixed with some earthy residues. There are no breaks, losses, or repairs.

Composition: Because of deep corrosion no sample suitable for wet analysis was available.

Elements estimated by emission spectrometry: Sample taken at the

³⁵⁵ Jung, *Sung-chai* . . . , 95. *Shang-chou* . . . , no. 808. Cf. also Po-ku-t'u-lu, ch. 16, 8-9.

³⁵⁶ Sun Hai-p'o, *Hsin-cheng-i-ch'i*, 126-128, and Kuan Po-i, *Hsin-cheng* . . . , 34.

NUMBER ONE HUNDRED SIX

joint of handle to body: Cu principal; Sn >1; Pb >1; Ag 0.2; Au <0.01; Fe 0.2; Co 0.03; Ni 0.03; As 0.3; Sb 0.07; Bi 0.2; Mg <0.001; Si 0.04.

INSCRIPTION

The inscription is incised and spurious. It comprised the *t'ien-kan* cyclical graph *i* (No. 2) and the character "fish." As the calligraphy and content is clearly Shang in style, the anomaly of a Shang style inscription in a late Chou style vessel proves immediately the hand of the faker.



Fu

Late Chou dynasty (5th–4th century B.C.)

No inscription

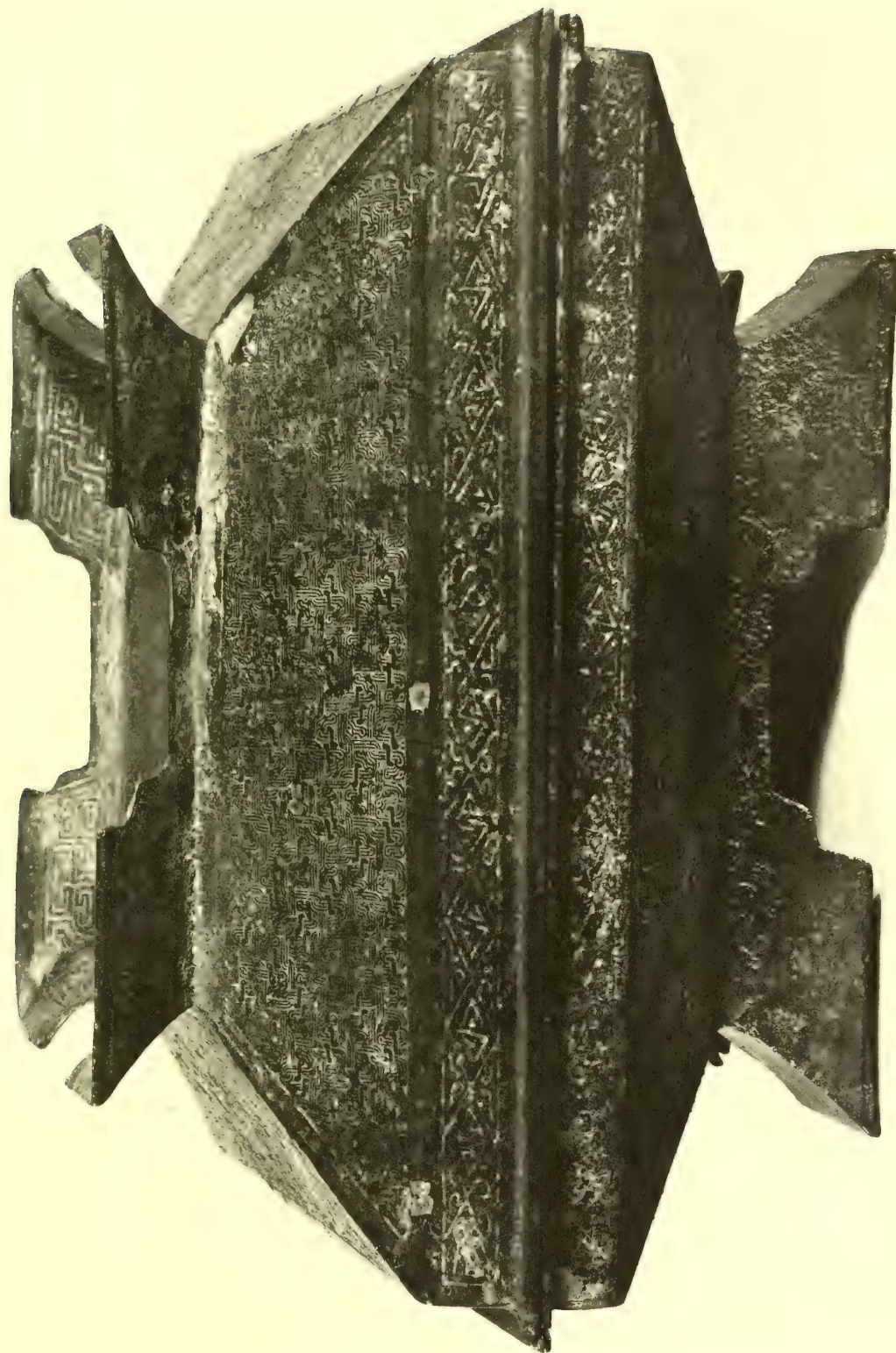
Height, 16.5 cm. (6½ in.)

Width, 27.3 cm. (10¾ in.)

Weight, 2.49 kg. (5 lbs., 8 oz.)

Accession number 13.14

The rectangular vessel consists of identical base and cover with the finial of the cover serving as a foot when that part is inverted. The only thing to distinguish one part from the other is a flange set inside the rim of the base to hold the cover in place; and this is apparently a later addition. The entire outer surface is covered with tightly drawn interlocking dragon patterns which completely fill areas separated by plain bands at the corners. Diagonal and volute patterns surround the two vertical areas above and below the lip. The whole vessel is covered with a greenish-black patina, moderately encrusted in some areas. The piece was bought at the Prince Kung sale at the American Art Association in New York. Mr. Freer wrote, "May be a Ming copy, but I think it Han."



NUMBER ONE HUNDRED SEVEN (13.14)

NUMBER ONE HUNDRED SEVEN

STYLE AND CHRONOLOGY

The fine pattern of serpent-dragons (sometimes, in this form, referred to as “worms”) on this *fu* is matched closely on the *fu* from the Tomb of the Marquis of Ts'ai referred to previously.³⁵⁷ Another point of affinity between the two vessels is in the outer contours of the legs, which are nearly straight, with only a slight break, quite different from the pronounced concavities of the legs on the fragmentary *fu* described below. Our *fu*, on the other hand, differs from most others in that it now lacks both handles and the small beast heads that project downward from the rim to facilitate the seating of the lid. Also, the bands of diagonal-and-volute pattern along the rims of cover and base on our bronze have no parallel on the Marquis of Ts'ai vessel. Such patterns, in their fully developed form, are found most commonly on bronzes of the fourth and third centuries. In this relatively plain and simple form, however, it may well belong slightly earlier, especially in view of the relationship to the Marquis of Ts'ai *fu*, which presumably dates with the rest of the find, to the late sixth or early fifth century. Other examples of patterns that seem to anticipate the typical diagonal-and-volute bands may be seen on fifth century bronzes from the same tomb and from Tomb 1 at Shan-piao-chen.³⁵⁸

TECHNICAL OBSERVATIONS

The vessel and the lid were each cast directly from four-piece molds. Vestiges of join traces can be seen along the corners where there is also slight evidence of imperfect register where decor units oppose each other. Two dark spots in the center of the end panels of the lid indicate that handles might originally have been located here, but apparently they were broken off and the stumps smoothed down to the level of the surface. Located in the plain area of both units are numerous squarish chaplets more or less symmetrically disposed. Some are also located in the decor areas which are unusual in that they lack pattern-joints.

A strip of brass, obviously a relatively recent addition or repair, has

³⁵⁷ *Shou-hsien Ts'ai-hou . . .*, Pls. 81–82.

³⁵⁸ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 39, nos. 1 and 2, P. 46 no. 2, Pl. 50 nos. 2 and 3.

NUMBER ONE HUNDRED SEVEN

been joined with soft solder to the inside of the rim as a flange to hold the lid securely in place. The surface is covered quite uniformly with olive-green-stained tin-oxide patina, but there are also scattered patches of malachite and azurite.

Composition: Sample taken from cover.

Wet chemical analysis: Cu 67.8%; Sn 7.0; Pb 22.0; Total 96.8

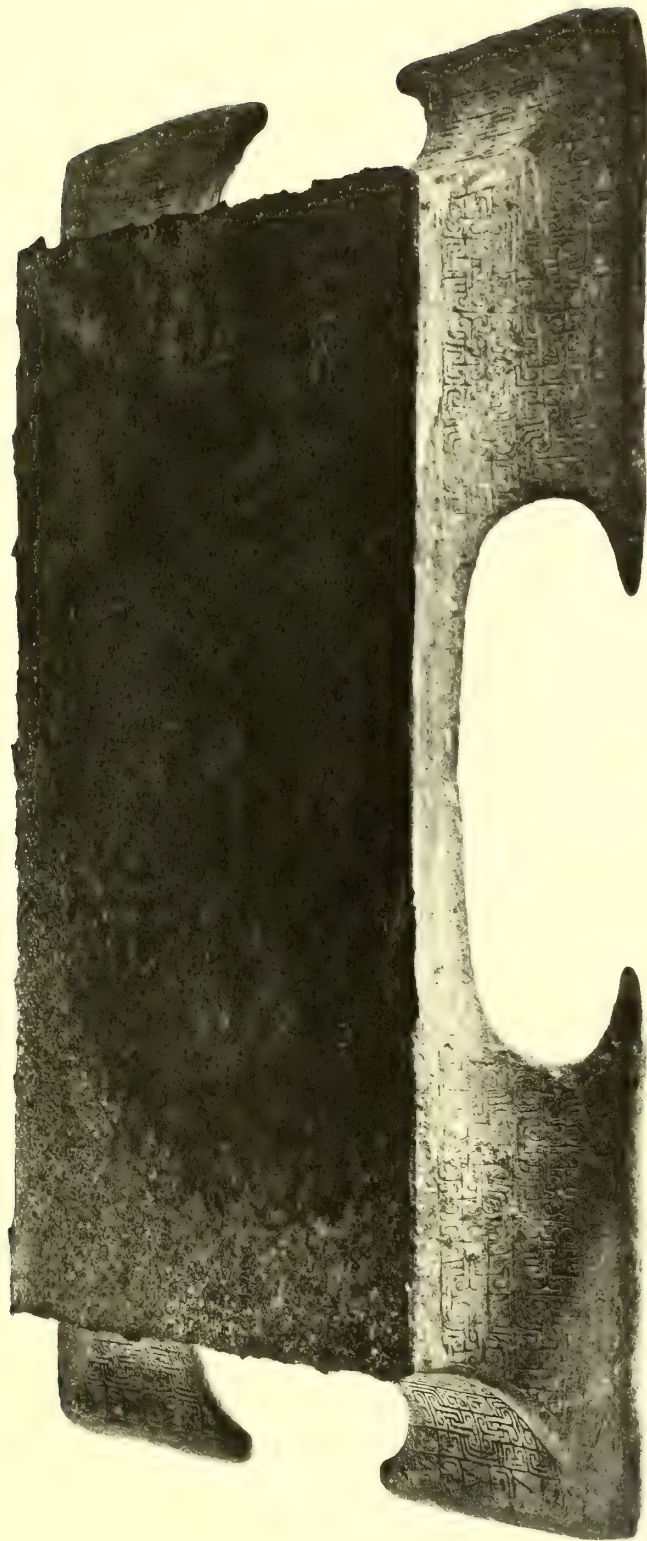
Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.1; Co 0.03; Ni 0.03; As 0.1; Sb 0.02; Bi 0.05; Al < 0.001;

Mg 0.003; Mn < 0.001; Si 0.04.

Fu (base of a similar vessel)
Late Chou dynasty (late 6th–early 5th century B.C.)
No inscription
Height, 3.2 cm. ($1\frac{1}{4}$ in.)
Width, 26.3 cm. ($10\frac{3}{8}$ in.)
Weight, 0.91 kg. (2 lbs.)
Accession number 09.336

This fragment has a finer and more regular surface decoration of interlocking dragons drawn in intaglio. On the underside of the base something has gone wrong with the casting and much of the design is barely legible. One side of the upper part of the foot is badly corroded, and the whole vessel is heavily covered with pale malachite and dark azurite patination. Mr. Freer described it as, "Very beautiful and genuine Han." It came from Count Tanaka, through Samurai Shokai of Yokohama.



NUMBER ONE HUNDRED EIGHT (09.336)

NUMBER ONE HUNDRED EIGHT

STYLE AND CHRONOLOGY

A good example of the type of *fu* to which this is the base is in the Buckingham Collection in the Art Institute of Chicago.³⁵⁹ Both have the same vermiculated pattern solidly covering the surface (*fig. 50*).

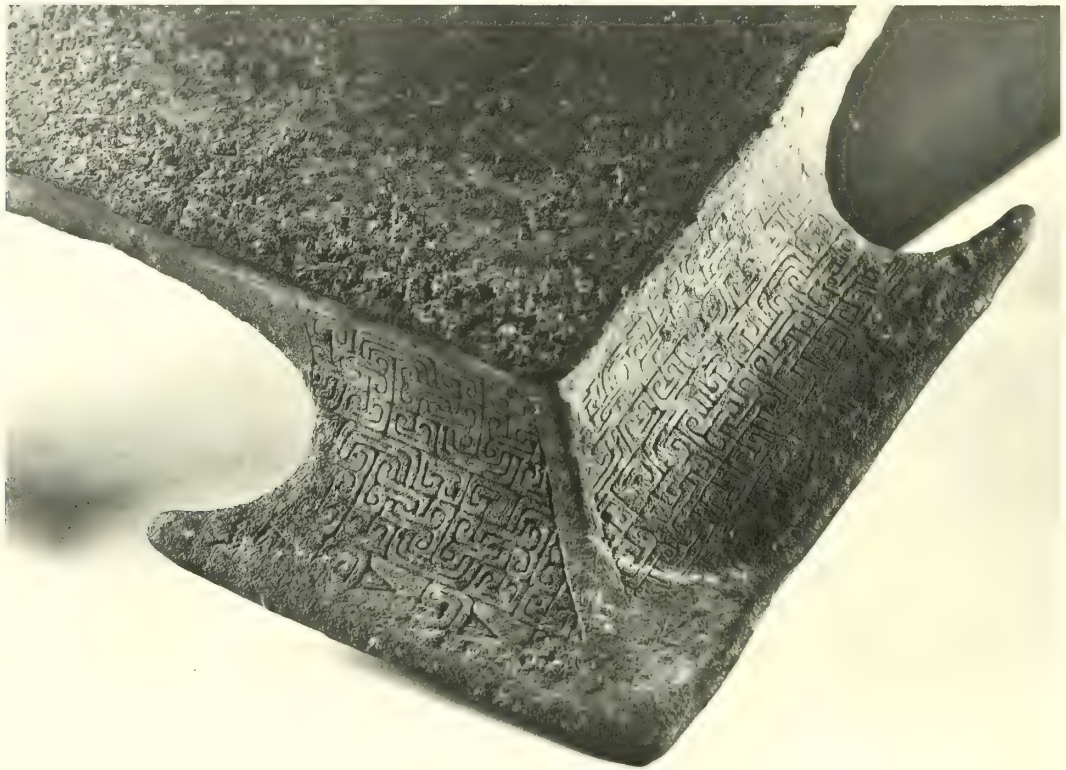


FIGURE 50

The *fu* probably did not exist before the Eastern Chou period, and the earliest examples seem to be those with decor characteristic of the seventh century.³⁶⁰ Kuo Mo-jo publishes the lower part of one which he dates, from its inscription, to the middle Ch'un-ch'iu period (i.e. the 7th century).³⁶¹ Two more related pieces, one from Hsin-cheng, are

³⁵⁹ Kelley and Ch'en, *Chinese bronzes . . .*, Pl. XLVIII.

³⁶⁰ E.g. Jung, *Shang chou . . .*, Pl. 352-7.

³⁶¹ Kuo Mo-jo, *Liang chou . . .*, I, fig. 139, text 187.

assigned by Watson to the late sixth or early fifth century,³⁶² a dating born out by the *fu* of the Marquis of Ts'ai mentioned in the discussion of Number 107 above. The fine pattern on the Marquis of Ts'ai *fu* is made up of intertwined dragons with distinct eyes and snouts, while on the Freer and Buckingham pieces, along with another found at Liu-li-ko,³⁶³ the pattern has become purely geometric.

TECHNICAL OBSERVATIONS

Although the inside edges of the arches of the base have a wide overhang, there are vestiges of mold marks along the corner edges which indicate the use of piece-molds. The wall of the flat bottom is only about 1 mm. thick, and the thickened rims of the feet are only about 5 mm. There are no signs of chaplets, and, if present, they are hidden by deep corrosion. In many areas corrosion is so complete that no metallic core remains, and this no doubt has caused the breaking away of the vessel body. The corrosion in this case is a good example of pseudomorphic replacement of copper with tin oxide. In the tin oxide surface on the feet the lines of the fine and deeply cut decor are still deep, and the edges are sharp. In certain areas on the underside, the mineral layer has been abraded away to leave a ghost pattern of the decor in the rough metal surface. There are scattered patches of malachite and azurite overlay and of earthy residues. There are no repairs or paint touch-ups. The object is probably in much the same condition as it was when found.

Composition: Sample taken from edge of flat bottom.

Wet chemical analysis: Cu 64.7%; Sn 9.2; Pb 23.8; Total 97.7.

Additional elements estimated by emission spectrometry: Ag 0.07%;

Fe 0.09; Co 0.1; Ni 0.05; Sb 0.02; Al < 0.001; Si 0.009.

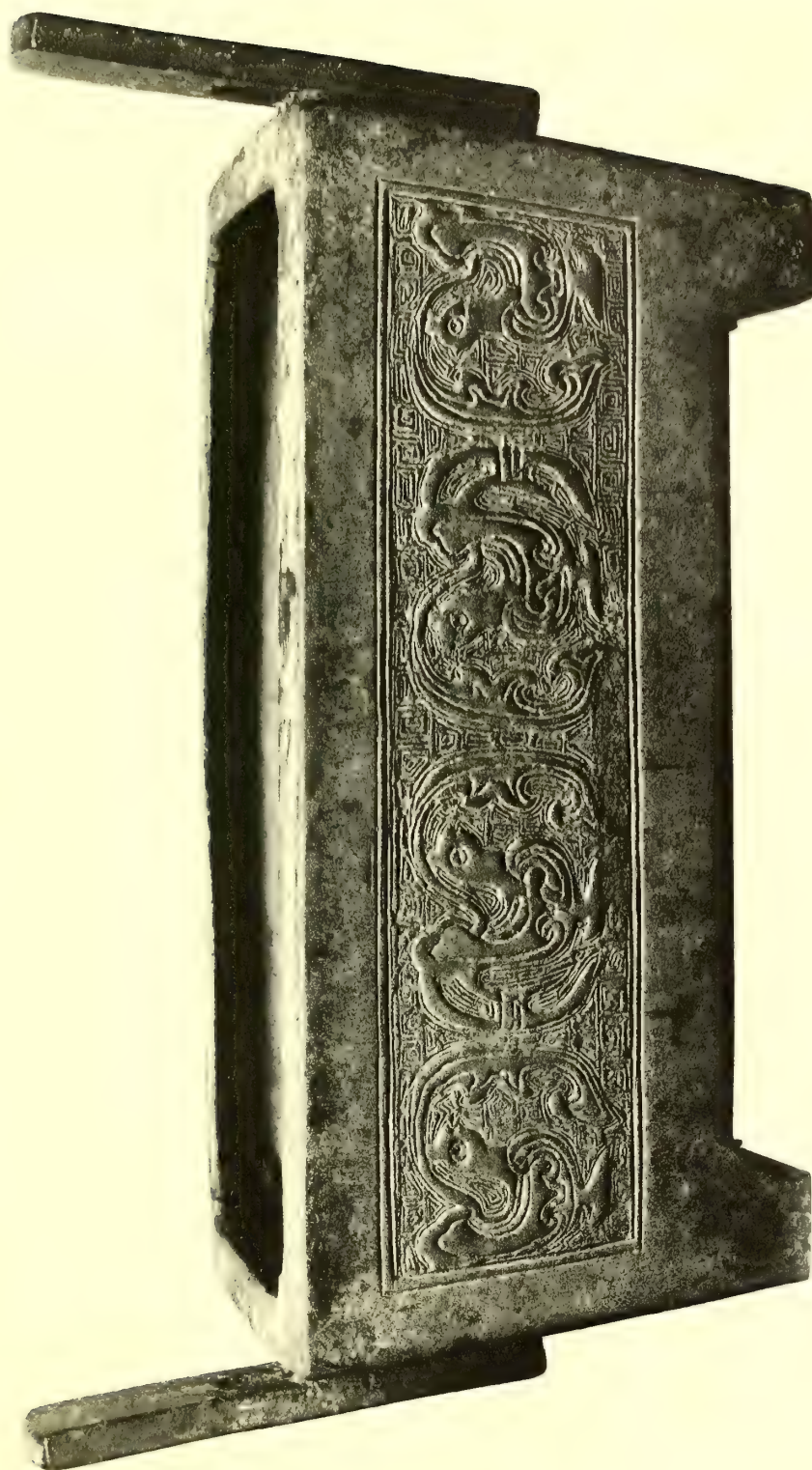
The alloy has an unusually high lead content.

³⁶² Watson, *Ancient Chinese bronzes*, Pls. 56b and 57b; the date in the caption to the latter, "6th or early 7th century B.C.," is surely a misprint.

³⁶³ Kuo Pao-chün, *Shan-piao-chen . . .*, Pl. 67.

A rectangular deep tray
Recent
No inscription
Height, 14.0 cm. ($5\frac{1}{2}$ in.)
Width, 28.3 cm. ($11\frac{1}{8}$ in.)
Weight, 1.78 kg. (3 lbs., 15 oz.)
Accession number 11.66

A vessel with straight sides leaning outward and inturning lip has two upright *ting* type handles attached to the ends. On all four sides are panels showing crested birds in somewhat early Chou style. A rough greenish patina covers the whole surface. Mr. Freer bought it from Riu Gu Sai, China, and described it as, "Interesting form and design, but probably a copy."



NUMBER ONE HUNDRED NINE (11.66)

NUMBER ONE HUNDRED NINE

STYLE AND CHRONOLOGY

The shape is unknown in ancient times, and does not even imitate an early vessel type. The low-relief designs in the trapezoidal areas on the sides are based very loosely on bird forms of the early to middle Chou transition, freely drawn in a manner that suggests a possible derivation from woodblock-printed designs. They are set against a crudely rendered *lei-wen* ground. A clue to the dating of vessels with decor in this style is provided by the recent discovery in Inner Mongolia of several archaistic bronzes of the Yüan dynasty.³⁶⁴

TECHNICAL OBSERVATIONS

The vessel is apparently cast in one piece. There is little or no evidence of mold marks. The handles are joined at four points of contact; and although there is evidence of seams at the lower contacts, there is none at the upper joins, hence they appear to be cast as an integral part of the vessel. The absence of mold marks, the thinness of the vessel walls, and the wide inward overhang (about 1 cm.) of the lip seem to deny the use of a piece mold in the casting.

The entire surface is uniformly coated with a rough but thin layer of dark green corrosion crust which obscures the detail of the low relief decor. To make the designs more readable, one side of the vessel was treated with dilute formic acid, which stripped away much of the corrosion layer and revealed many details formerly hidden. The vessel is in good condition; there is no evidence of paint or repair.

Composition: Sample taken from underside of the one leg.

Wet chemical analysis: Cu 77.4%; Sn 10.1; Pb 9.8; Total 97.3.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.003; Co 0.01; Ni 0.2; As 0.1; Sb 0.3; Bi 0.03; Zn 0.1; Mg < 0.001; Mn < 0.001; Si < 0.001.

The presence of a small amount of zinc is noted.

³⁶⁴ *Nei Meng-ku*, pls. 159-163, espec. pl. 163.



End view

Huo

Late Chou or early Han dynasty (3rd century B.C.)

No inscription

Height, 28.5 cm. (11 $\frac{1}{4}$ in.)

Width, 29.9 cm. (11 $\frac{3}{4}$ in.)

Weight, 3.29 kg. (7 lbs., 4 oz.)

Accession number 11.630

This vessel is difficult to classify, but is here considered a *huo* because of its lid and pouring spout. The shape is that of an inflated bird standing on three feet, and the spout is designed as a monster mask. On the small circular lid is a backward-facing standing bird with wings spread, executed in the full round; and to its breast is attached a chain the other end of which is held by a kneeling man. Flanking this group are six Ordos-style tigers executed in intaglio (perhaps incised?). A smooth, greenish-brown patina covers the entire vessel and is interrupted by occasional areas of malachite and cuprite encrustation. The piece came from Samurai Shokai of Yokohama, and Mr. Freer called it "genuine Han. Rare, and of unusual form."



NUMBER ONE HUNDRED TEN (11.630)

NUMBER ONE HUNDRED TEN

STYLE AND CHRONOLOGY

Aside from a fragmentary related vessel in the Royal Ontario Museum, Toronto, nothing quite like this bizarre creation is known. There are, however, other late Chou pouring vessels with which it shares some features. The canine-type beast's head that terminates the spout resembles that on a round-bellied *i* that Mizuno assigns to the fourth or third century;³⁶⁵ and the creatures with S-shaped bodies executed in sunken lineament on the upper surface are fairly common on late Chou bronzes.³⁶⁶ The curious mode of attachment of the lid, with one of two double links of a chain held by a kneeling human figure and the other joined to a loop on the breast of a bird, is perhaps unique, but can be compared to that on another *huo* published by Umehara, where one link is held in the beak of a bird on the lid, and the other encircles the neck of a tiger on the body.³⁶⁷ Otherwise Umehara's vessel is more conventional than ours, its shape following a type known in at least one example assigned to the fifth century.³⁶⁸ The present piece exemplifies the free and fanciful spirit that the late Chou bronze-casters were apparently permitted to indulge.

The motif of "the kneeling man" is worthy of study *per se* and has not received the attention it deserves. Janse called attention to it when it turned up in the course of his excavations in Indo-China. His most striking example is the bronze lampadary found in Tomb 3, "The tomb of the kneeling person" at Lach-tru'o'ng.³⁶⁹ The dating of those finds is still not very precise, but in a general way they seem to relate to Han China. Another group of kneeling figures purporting to have been found at Chin-ts'un, Honan, was published by Umehara some years earlier.³⁷⁰

³⁶⁵ Mizuno, *In shū* . . . , Pl. 149.

³⁶⁶ Cf. e.g. Umehara, *Sengoku* . . . , Pls. LXXVII, LXXXIV-VI.

³⁶⁷ *Op. cit.*, Pl. LXII.

³⁶⁸ Watson, *Ancient Chinese bronzes*, 51b.

³⁶⁹ Janse, *Archaeological research* . . . , vol. I, pls. 9-10, see also pls. 11-12, 55-57 for related material. In the same tomb was a bronze vessel which to judge from the drawing on p. xxvii, fig. 10, of the same volume is very close in shape and decoration to our No. 118. The animal band around the belly seems to resemble that on the *lien* No. 120. Cf. also, Bachhofer, *Bronze figures* . . . , XXIII.

³⁷⁰ Umehara, *Rakuyo kinson* . . . , Pls. XXXIII-XXXVIII.

TECHNICAL OBSERVATIONS

Technically this is an interesting and unusual piece. Although there is a join mark under the body, head, tail, and wings, seem to be cast in one piece. On the inside at the join of neck to body there is a ridge or stricture, which suggests that the head and neck are cast on, but careful examination using strong illumination and mirrors on the inside and moderate scraping at the base of the neck outside revealed no sign of a seam. Moreover, there is no break in the external modeling at that point. The small kneeling man figure also seems to be cast as one with the vessel. The three feet, however, are cast separately and cast on to the body. A seam shows plainly at each leg join, and on the inside an irregular patch of metal above each leg shows that the leg metal was cast through a hole in the side of the body, and it was locked there on solidification of the metal. Both front legs are flat on the inside; the right leg is clay cored, but the left one is filled with metallic lead which is obviously a modern repair concealed with brown paint. The single hind leg has a prominent mold mark facing the inside. The stepped ridges on the underside of each leg probably indicate the location of the pouring gates at time of casting. On the inside of the vessel there is a depression opposite the join of each wing. No evidence of chaplets was found.

An especially interesting feature is a flattened area on the underside of the bird's body. Close examination shows there is a sort of patch or insert in this area delimited by a seam around its outside edge and a corresponding ridge or overlap on the inside. This oval piece (about 12×8 cm.) appears to be after-cast or cast on to complete the bronze.

The bird on the lid, unlike the man to which it is linked, appears to be cast on. There is a seam at the join and underneath a little blob of metal indicates the bird was cast through a hole and locked on. The double chain links and the loops of both bird and man show mold join marks around the inside. The parallel decor grooves of the wings and of the small animals are rather crudely done, and they seem to have an incised character but close examination indicates they were cast.

Although mineralization of the metal is fairly deep, many areas of the surface are smooth and unblemished. Other areas are pocked with little

NUMBER ONE HUNDRED TEN

blisters and crusts formed mostly from natural malachite and cerussite.

Composition: Sample taken from tail.

Wet chemical analysis: Cu 72.8%; Sn 7.8; Pb 18.0; Total 98.6.

Additional elements estimated by emission spectrometry: Ag 0.2%;
Fe 0.07; Co 0.003; Ni 0.03; As 0.2; Sb 0.1; Bi 0.03; Al < 0.001;
Mg < 0.001; Si 0.002.



Detail of animal figure on shoulder

Huo

Recent

No inscription

Height, 22.2 cm. ($8\frac{3}{4}$ in.)

Width, 27.3 cm. ($10\frac{3}{4}$ in.)

Weight, 3.91 kg. (8 lbs., 10 oz.)

Accession number 09.254

The squat-shaped, covered vessel on three feet has a bird-like spout and a heavy handle of elaborately interlocking rods that give it the general shape of a quadruped with head and tail. The principal surface consists of tightly interlocking scroll forms, and the bands between are inlaid in silver and some gold forming the volute and triangle pattern. The three legs consist of birds apparently sitting on the shoulders of crouching humans with bears heads. A small rat-like figure crouches on the bird's head on the spout. The vessel is evenly covered with a dark-brown patina which shows areas of cuprite and malachite encrustation.



NUMBER ONE HUNDRED ELEVEN (09.254)

NUMBER ONE HUNDRED ELEVEN

STYLE AND CHRONOLOGY

A series of vessels of this type appears in *Po-kut'u-lu*.³⁷¹ Parallels can be found for most features of the present piece among the woodcut illustrations there, although no single example corresponds exactly. Perhaps because of this strong representation in a work so highly respected by Chinese antiquarians, the vessel type has been a favorite with forgers and makers of archaistic pieces. An example that is more convincing as a work of the late Chou period is in the Buckingham Collection;³⁷² the nature of its surface decor suggest a date in the fifth or fourth century. Another, quite similar in form to ours but lacking both relief and inlaid decor, was in the collection of Charles Vignier.³⁷³ The openwork handle, the spout, and the legs are roughly paralleled in a *huo* vessel in the Palace Museum, Taiwan.³⁷⁴ In their elaborate and unexplainable iconography, the vessels of this group stand apart both from the prevailing style of geometric abstraction and from the new pictorial motifs of the "hunting-style" bronzes of the same period, and may pertain to religious beliefs current in some particular region of China.

TECHNICAL OBSERVATIONS

The vessel including spout and legs was cast in one piece apparently not in a piece mold. The complicated open-work handle is cast separately and is joined on with soft solder. On the inside opposite each handle contact is a small pin-like projection which seems to belong to the handle. The underside of the vessel bears a low circular ridge with three radiating spokes which look like mold marks but may be divisions in the model or pattern. There is no continuation of these radiating lines upwards into the decor bands.

The silver inlay of the middle circular band includes also eight small triangular inserts of gold, and the eyes of the beast are gold inlaid. The edges of the wider elements of gold and silver inlay are ringed with a

³⁷¹ Ch. 19, pp. 40–47 (edition of 1752).

³⁷² Kelley and Ch'en, *Chinese bronzes . . .*, Pl. LXII.

³⁷³ Umehara, *SKS/E*, III, 191.

³⁷⁴ *Ku-kung t'ung-ch'i . . .*, II, F.319.

narrow ribbon or wire of the same metal. This may be the turned-up edge of the silver crimped into grooves prepared to secure the inlay metal. This technique is similar to that employed on the vessel of the type *kuang* which is also in this series (No. 46). The spout is open into the vessel but residues of original core material still lodged there indicate the vessel was probably cast for ornamental not functional purposes.

The vessel shows no evidence of burial, although the tarnished surface has scattered patches of natural azurite and malachite. In addition to natural patina, there are scattered areas of artificial patina made of coarsely powdered malachite which in some way is made to adhere to the surface. Many of the fragments of crushed malachite show the typical banding of malachite mineral, but the orientation of the banding is broken and irregular as would be expected in particles strewn at random; furthermore, they are rounded and worn as if the surface has been polished over a long period of time.

Composition: Sample taken from the right front leg.

Wet chemical analysis: Cu 68.9%; Sn(+Sb) 3.8; Pb 21.8; Zn 3.5;
Total 98.0.

Additional elements estimated by emission spectrometry: Ag 0.2%;
Fe 0.1; Co 0.002; Ni 0.09; As 0.3; Sb >1.0; Bi 0.05.

The composition of this bronze is somewhat unusual as compared with vessels accepted as being much earlier in date. The lead content is high and content of tin low. It is one of the few bronzes with antimony content estimated to be greater than 1%. The zinc content is among the highest in the entire series of vessels analysed.

Tsun

Gift of Mr. and Mrs. Eugene Meyer

Late Chou dynasty (5th century B.C.)

Inscription of four (?) characters inlaid in gold

Height, 26.5 cm. (10½ in.)

Width, 20.0 cm. (7⅞ in.)

Weight, 2.55 kg. (5 lbs., 10 oz.)

Accession number 61.30

This vessel in the shape of a bird has a detachable head fixed with a locking mechanism which makes it impossible to remove when the head is in its proper position. The whole thing is extremely finely cast simulating feathers and with areas on the breast done in the broad interlocking dragon style seen on such vessels as Number 94 and Number 97. The surface is covered with a very fine shiny dark brown patina.



NUMBER ONE HUNDRED TWELVE (61.30)

NUMBER ONE HUNDRED TWELVE

STYLE AND CHRONOLOGY

The *tsun* in owl form has been known since the An-yang period, and a number of Shang and early Chou examples have been published.³⁷⁵ Such early Chinese texts as the *Chou-li* and the *Shih-chi* refer to sacrifices performed with bird-shaped vessels, and the owl is sometimes specifically designated.³⁷⁶

The decoration of the body, composed mainly of intertwined dragons richly ornamented with fine spirals, striation, and *pseudo-granule*, is in a style current in the sixth and fifth centuries as has been noted in the discussion on the *chien* Number 94 and the *hu* Number 97; and this vessel may be considered contemporary with those pieces. There is a parallel to the curious hinged cover on the spout in a late Chou *hu* of vaguely bird-like shape in the Nara Museum; and a bird head very like this one has been transposed onto a bronze beast in the collection of the Peking Palace Museum.³⁷⁷



FIGURE 51

³⁷⁵ Mizuno, *In-shū* . . . , p. 36, refers to one found in tomb No. 1885 at Hsi-pei-kang, Hou-chia-chuang. Related examples are illustrated on his plates 57 and 72; and another is illustrated by Jung, *Shan-chai* . . . , no. 135.

³⁷⁶ Tch'ou To-yi, *Bronzes antiques* . . . , refers to this practice in his discussion of the owl now in the collections of Dumbarton Oaks, Washington, pp. 9-10, pls. I-II.

³⁷⁷ Umehara, *SKS/J*, vol. V, 383; and the latter is shown in *Ku-kung-chou-k'an*, no. 15.

TECHNICAL OBSERVATIONS

The vessel appears to be cast in a two-piece, four-division mold assembly with what seem to be true mold joins along the centers of the breast and back (*fig. 51*). The pre-assembly joins are placed in rather unexpected locations, and the divisions are dictated as far as possible by the anatomical features of the bird and nature of the decor which are well concealed in the finishing. The two legs are precast each with a clay core, and the body of the bird is cast to them as is indicated at the well-concealed seams by traces of spillage or flash metal from the body onto the leg. The decor of the body is quite different from that of the legs and does not cross over the join between them. Two rectangular depressions in the bottom of the vessel coincide with the two legs. The surface inside is smooth except for the narrow space in the tail which is still filled with original clay core. A small square boss on the underside of the tail may be the stump of a casting sprue. There is evidence that several small squarish chaplets were concealed by the finishing.

There are no mold join traces on the head. This member fits onto the body by means of an inside collar slotted to engage a set-in lug on the inside of the neck resembling a bayonet lock (*fig. 52*). The curved upper beak of the bird is hinged on a simple pivot to permit the beak to be raised, but not to stay open.



FIGURE 52

NUMBER ONE HUNDRED TWELVE

The decor is especially interesting because it was apparently done with stamps or dies carved with all the decor elements present.

The upper part of the bird required one stamp, the scale-like edge probably two and the feathered part possibly two. Faint traces of joins on both wings indicate the use of two stamps here which rendered withdrawal of each stamp possible without damaging the fine intaglio lines (*fig. 53*).

The eyes are inlaid with a gold ring encircling a gold pupil. There is also a four-character inscription in gold on the crest.

The surface is uniformly covered with glossy black patina. There are no eruptive corrosion products inside or out and no sign that the vessel was ever buried in the earth. There are no breaks or losses or evidence of repairs and paint.

Composition: Sample taken from underside of the proper right foot, which is cast separately from the body.



FIGURE 53

NUMBER ONE HUNDRED TWELVE

Wet chemical analysis: Cu 74.1%; Sn 13.6; Pb 10.8; Total 98.5.

Sample taken from edge of tail: Cu 71.8%; Sn 12.8; Pb 13.7; Total 98.3.

Additional elements estimated by emission spectrometry: Ag 0.2%;
Fe 0.007; Co 0.02; Ni 0.07; As 0.2; Sb 0.2; Bi < 0.03.

INSCRIPTION

This gold inlay inscription reads: "The gentleman's esteemed bird."



Tui

Recent

No inscription

Height, 25.1 cm. ($9\frac{7}{8}$ in.)

Width, 27.6 cm. ($10\frac{7}{8}$ in.)

Weight, 4.51 kg. (9 lbs., 15 oz.)

Accession number 11.81

The egg-shaped vessel has three legs and three identical members on top which serve as legs when inverted. Two lugs protrude from the sides at the top of the body. Horizontal bands of various scroll patterns boldly inlaid in copper, malachite, and silver cover the whole surface. The bronze has taken on a brownish patination showing a few areas of malachite encrustation.



NUMBER ONE HUNDRED THIRTEEN (11.81)

NUMBER ONE HUNDRED THIRTEEN

STYLE AND CHRONOLOGY

A very similar vessel, with inlay in the same materials, is in the Brundage Collection.³⁷⁸ The inlaid patterns are based on late Chou geometric decor styles but lack the fanciful, swinging movement of line and the complex play of diagonals characteristic of pieces made in that age. This is immediately apparent if the two vessels are compared with late Chou examples of the type that served as models: the well-known piece in the Winthrop Collection at the Fogg Art Museum,³⁷⁹ or one in the Shanghai Museum.³⁸⁰ The more rigidly compartmentalized and static designs on the Freer and Brundage *tui* agree rather with those on inlaid vessels commonly ascribed (although without positive evidence) to the Sung period.³⁸¹

TECHNICAL OBSERVATIONS

Each member, vessel and cover, including handles and legs, is cast in one piece, probably not in a piece mold. There is no evidence of joins or mold marks. The rim of the vessel is deeply recessed so that the cover fits quite perfectly to give the appearance of an ovoid sphere.

The entire surface is lavishly inlaid with a mosaic design outlined with strips of silver and copper set into the bronze and further enhanced by the inlay of small rectangular tesserae of malachite which show the typical banding of that mineral. A few pieces of silver inlay have been lost, but the malachite is intact. The green inlay of the projecting members is different and is a filling of ground malachite mineral probably mixed with some organic binder. There is no evidence of burial and the bronze metal is only slightly tarnished. The vessel has recently been partially cleaned to reveal in greater contrast the silver and copper inlay and to uncover the green paste inlay of the handles.

Composition: Sample taken from underside of one leg.

³⁷⁸ Cahill, *The art of Southern Sung China*, no. 37.

³⁷⁹ Umehara, *SKS/E*, III, 215; also Mizuno, *In-shū* . . . , Pl. 131.

³⁸⁰ *Shang-hai po-wu-kuan* . . . , no. 89.

³⁸¹ Watson, *Sung bronzes*, Pl. 83, nos. 234 and 239.

NUMBER ONE HUNDRED THIRTEEN

Wet chemical analysis: Cu 69.2%; Sn 5.9; Pb 21.5; Zn 0.9; Total 97.2.

Additional elements estimated by emission spectrometry: Ag 0.2%;

Fe 0.07; Co 0.007; Ni 0.07; As 0.2; Sb 0.2; Bi 0.1; Mg < 0.001.

The proportion of lead to tin is high, about 4:1. The presence of nearly 1% of zinc is noted.

Tui

Han dynasty (late 3rd–early 2nd century B.C.)

No inscription

Height, 16.5 cm. (6½ in.)

Width, 29.2 cm. (11½ in.)

Weight, 1.87 kg. (4 lbs., 2 oz.)

Accession number 24.13

The thinly cast bowl with low foot rim stands on three legs in the form of human beings. A plain band surrounds the upper part of the vessel, and on it are two monster mask escutcheons holding loose rings in their beaks. The surface is roughly covered with malachite encrustation and earthy accretion.



NUMBER ONE HUNDRED FOURTEEN (24.13)

NUMBER ONE HUNDRED FOURTEEN

STYLE AND CHRONOLOGY

At first glance we are tempted to classify a bowl shaped vessel on three legs as a *ting*, but a group of pieces published by Jung Keng shows the wide range allowed within the category of *tui* and reminds us at the same time that the characteristic *ting* handle is missing in this case.³⁸² An examination of those vessels further raises the possibility that ours may once have had a lid. Jung places this group in the Ch'un-ch'iu and Chan-kuo periods (i.e. between 770 and 222) which, like most of his dating is far too general and none too accurate. Umehara places a very similar piece to ours in Western Han,³⁸³ and an early date within that period seems like a reasonable attribution.

TECHNICAL OBSERVATIONS

The vessel, including the *t'ao-t'ieh* handles, is cast in one piece. Deep probing about the juncture of legs to the body shows no evidence of seams or cast-on joins. The small human-form legs show slight evidence of mold marks along their sides. The thinness of the walls, the absence of mold marks on the vessel suggest, however, that it was not cast in a piece mold. It is possible that the legs served as sprues. Both of the ring handles are split. There is some evidence of chaplets in the vessel walls.

The surface is thinly covered with dull-green malachite mixed with some atacamite. Scattered patches of loess indicate the vessel was recovered from burial. There are several small crude repairs in the side-wall, which were made, apparently, at an early time to conceal casting flaws.

Composition: Sample taken from rim of foot.

Wet chemical analysis: Cu 85.9%; Sn(+Sb) 4.1; Pb 7.1; Total 97.1.

Additional elements estimated by emission spectrometry: Ag 0.3%; Au <0.01; Fe 0.01; Co 0.03; Ni 0.2; As 0.3; Sb >1; Bi 0.05; Mg <0.001; Si 0.006.

The presence of antimony in amount greater than 1% is noted.

³⁸² Jung, *Shang chou* . . . , vol. II, nos. 377-396 all fall in this group.

³⁸³ Umehara, *SKS/J*, VI, 446.



Detail of leg

Ting

Recent

Two inscriptions totaling some 50-odd characters on the outside of the bowl

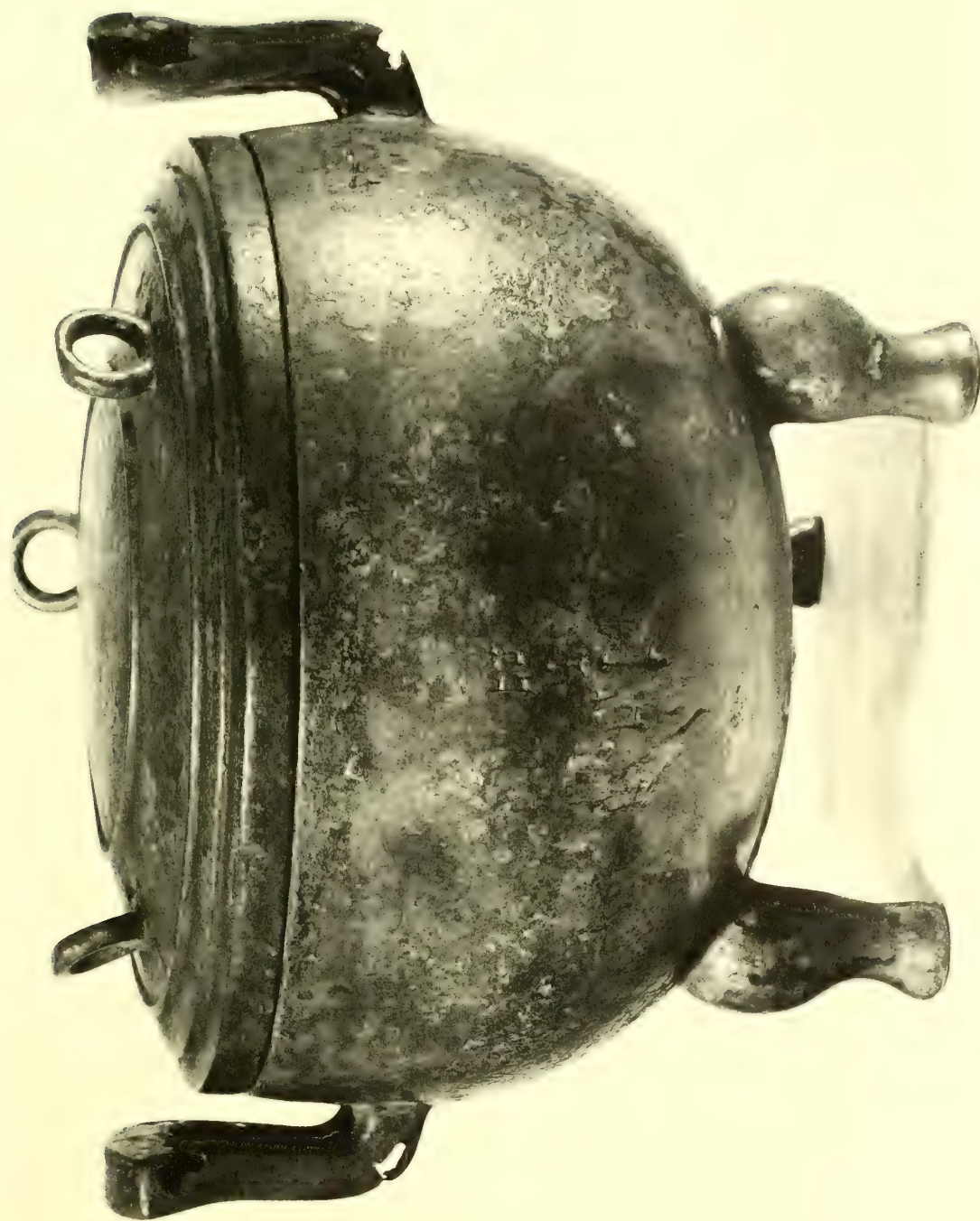
Height, 19.7 cm. ($7\frac{3}{4}$ in.)

Width, 26.3 cm. ($10\frac{3}{8}$ in.)

Weight, 2.66 kg. (5 lbs., 14 oz.)

Accession number 09.333

The covered vessel without decoration has the form of a late Chou *ting*. Two concentric circles in relief and three ring handles standing on edge on the lid break the monotony of the otherwise plain surface. One of the two handles has been broken off, and the thin bronze of the other has been damaged.



NUMBER ONE HUNDRED FIFTEEN (09.333)

NUMBER ONE HUNDRED FIFTEEN

STYLE AND CHRONOLOGY

In shape, this piece is based loosely on a type prevalent from the end of Chou into the Han period,³⁸⁴ but no very close parallel appears to be known. The short, stubby legs are unusual; on most other *ting* of that age the legs are proportionately longer and attached higher on the body.³⁸⁵ This is not in itself cause for suspicion, and the vessel might be seen simply as a variant of the standard type, were it not for the anachronistic inscription and the fact that the alloy metal contains a measurable amount of zinc as noted below.

TECHNICAL OBSERVATIONS

The two members, vessel and lid, are each cast in one piece. The thin walls, absence of mold marks and absence of seams at the joins, suggest that both vessel and lid were not cast in piece molds. The legs which are cast as one with the vessel are hollow, open on the inside, and the hollow is filled with original clay core (*fig. 54*). On the underside a triangle is formed by low ridges which connect the legs. These may be the imprint of an outer-leg core section. The handles were also cast hollow and presumably with clay cores, but holes in the walls of the handles, either casting flaws or damages caused by corrosion have permitted the core material if any to fall out. One handle has broken off showing the presence of an old break which has been crudely repaired. There is no evidence of chaplets.

The lid and two of the rings appear to be cast as one, but the third ring is part of an old repair area which was cast on. Underneath the lid a small sprue ridge lies in the center of the repair patch.

The stepped-back rim of the vessel is a separate piece, a hoop of bronze joined with soft solder and the join concealed with paint. In fact most of the interior and exterior surface of both vessel and lid are covered with artificial patina.

³⁸⁴ Cf. Jung, *Shang chou . . .*, nos. 118 and 119, called "Han" and "Late warring States" respectively by the author. No. 119 resembles the present example in shape of body and lid; no. 118, in the ring handles on the lid and the cabriole legs – which are set, however, higher on the body.

³⁸⁵ Pottery *ting* with similarly stubby legs were, however, found in the Han tombs at Shao-kou near Lo-yang; see Lo-yang shao-kou Han-mu, Pl. XVIII no. 5, Pls. XXVI and XXVII.



FIGURE 54

The almost illegible inscription around the outside appears to have been cast. There is no evidence on the inside to indicate mechanical working as might be expected in such thin metal. Had thin metal been worked mechanically from the outside raised areas or distortions would inevitably have appeared on the inside.

Composition: Sample taken from underside of one leg.

Wet chemical analysis: Cu 84.6%; Sn 3.5; Pb 7.9; Zn 2.3; Total 98.3.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.3; Co 0.001; Ni 0.03; As 0.3; Sb 0.2; Mg <0.001; Si 0.04.

This is one of the few vessels in the collection in which zinc content is greater than 1 percent.

NUMBER ONE HUNDRED FIFTEEN

INSCRIPTION

The inscription which is cast-in the outer wall surface of the vessel comprises a string of 40 to 50 characters. Very few of these can be deciphered. A Shang-style clan sign together with the posthumous title, Fu-i, is located in a central position. The vessel is a style very much later than the inscriptions and thus obviously a forgery. It is one of the few examples of such chronological confusion. As it was mainly in the late 18th century and the early half of the 19th century that forgers erred so naively, we may perhaps date its manufacture accordingly. It has not, however, been previously published.



Pien-hu

Recent

No inscription

Height, 32.8 cm. ($12\frac{7}{8}$ in.)

Width, 32.3 cm. ($12\frac{3}{4}$ in.)

Weight, 2.61 kg. (5 lbs., 12 oz.)

Accession number 09.335

The overall shape is soft and has a squashed-down look; the mouth flares out and then contracts again to form a lobed bulb just below the low straight rim which is capped by a small lid of matching shape. Escutcheon masks hold loose ring handles at the shoulders; and the only decoration on the surface consists of two broad depressed bands following the curve of the body on each side. The vessel stands on a rectangular spreading foot. Over the smooth brown corrosion of the surface are areas of malachite encrustation.



NUMBER ONE HUNDRED SIXTEEN (09.335)

NUMBER ONE HUNDRED SIXTEEN

STYLE AND CHRONOLOGY

There is little comparative material available for the study of this type; and we may assume that museums and collectors who may have them do not consider such weak and uninspired bronzes worth publishing. Among the few illustrations that come readily to hand are those in the Ch'ien-lung catalogue;³⁸⁶ and the four pieces shown there between them have a number of the features displayed by ours. One has the lobed bulb on the neck, another has the depressed bands matching the side curves, etc. All those Ch'ien-lung pieces are ascribed to the Han dynasty; and in view of the fact that none has an inscription and there is no real evidence of any kind, we can only regard the attribution as traditional. Another *hu* of generally similar type is published by Umehara³⁸⁷ who places it as late as Eastern Han; but neither that nor the following piece in the same book are very convincing specimens, and there is no evidence that they may not be later imitations like ours.

TECHNICAL OBSERVATIONS

The vessel proper is cast in one piece and the escutcheons appear to be cast integrally with it. The two ring handles are not split, however, hence the mode of fixing the rings is still a matter of question. There are no visible mold marks on the exterior but on the inside of the neck two vestigial mold marks extend downwards on opposite sides in the plane of the long axis. On the underside is the remnant of a long narrow pouring gate. The ring-topped cap which extends down into the neck for 3.3 cm. is cast and appears to be an original component part. Much of the surface is covered with an enamel-like patina of malachite. The condition is good.

Composition: Sample taken from under edge of foot.

Wet chemical analysis: Cu 66.9%; Sn 8.6; Pb 21.9; Total 97.4.

Spectrometric analysis: none.

³⁸⁶ *Hsi-ch'ing* . . . , ch. 21, pp. 64-67.

³⁸⁷ Umehara, *SKS/J*, VI, 474.



Detail of handle (*ca.* × 1.5)

Pien-hu

Recent

No inscription

Height, 30.0 cm. (11 $\frac{3}{4}$ in.)Width, 22.6 cm. (8 $\frac{7}{8}$ in.)

Weight, 2.81 kg. (6 lbs., 3 oz.)

Accession number 11.56

The sides of the vessel are perfectly circular and flat while the edge is roundly bulging. The tall neck spreads into a lobed bulb just below the top as on the previous vessel. Archaistic handles vaguely recalling the late Chou dragon style join the shoulders to the bulb on the neck. The smooth brown patination of the surface is heavily encrusted with rough areas of malachite and cuprite.



NUMBER ONE HUNDRED SEVENTEEN (11.56)

NUMBER ONE HUNDRED SEVENTEEN

STYLE AND CHRONOLOGY

This vessel is even poorer and weaker in conception than the last; and, as will be seen in the technical observations below, it appears to be a pastiche made up of sundry scraps of metal. There are no stylistic data to connect it with anything; and we publish it only for the record and in the hope that the fact of its existence may in the long run be of some use.

TECHNICAL OBSERVATIONS

The vessel is a forgery made up of various pieces of old and new metal. The shell around the edge is sheet brass, and the two flat discs that form the sides are thin heavily corroded bronze that appears to be old. On the shoulder are two cast handles that may likewise be of some age. Two sheets of metal form the double bottom. All these pieces are joined with soft solder and the joins are covered with a plaster-like substance in some places; and with false patina made in part of Paris green. The entire surface has an insoluble brownish coating, probably oriental lacquer.

Composition: No analyses made.

NUMBER ONE HUNDRED SEVENTEEN



Detail of bottom showing sheet construction of wall of vessel and fill around rim of foot

Hu

Han dynasty (late 2nd–1st century B.C.)

No inscription

Height, 29.8 cm. ($11\frac{3}{4}$ in.)

Width, 18.2 cm. ($7\frac{1}{8}$ in.)

Weight, 1.25 kg. (2 lbs., 12 oz.)

Accession number 66.14

The swelling belly of this vessel is supported by a slightly flaring foot, and the shoulder curves gracefully into a tall almost cylindrical neck. The decoration all over is incised rather than cast. On the neck and shoulder broad bands of feather tips are bordered by triple bands consisting of diamond diaper with sawtooth above and below. On the shoulder this pattern is interrupted by two broad bands of perfectly plain concave fluting. The main decoration of the body consists of diamond shaped lozenges interlocked horizontally and each framing a vertical double-diamond shaped device. The whole surface is uniformly covered with a smooth metallic patina showing scattered patches of malachite encrustation.



NUMBER ONE HUNDRED EIGHTEEN (66.14)

NUMBER ONE HUNDRED EIGHTEEN

STYLE AND CHRONOLOGY

This *hu* and the three *lien* that follow belong to a group of bronzes all of which have incised decoration in a very distinctive style. Some 20 related pieces have been published.³⁸⁸ The technique, which evidently consisted of cutting into the surface of the cold bronze with a burin or chisel, is itself a departure from the normal Chinese mode of decorating bronze. And the designs thus executed, whether animal or abstract, seem to be wholly unrelated to the main lines of development illustrated by the history of Shang and Chou bronzes. Evidently they belong to a separate tradition. In his discussion of a *Po-shan-lu* in this style,³⁸⁹ Umehara states that a number of related bronzes were excavated at a single site in 1923, but he fails to say where; and other writers have likewise been silent on their provenance. Word of mouth information current among dealers and collectors, however, has for some time attributed these pieces to Ch'ang-sha, Hunan Province, in the ancient state of Ch'u; and there is some evidence to support this view.

Most striking is a bronze bowl with simple geometric decoration incised in a style related to that on the more elaborate vessels mentioned above.³⁹⁰ It was among the finds in a tomb dated to the latter part of Western Han which the authors define as the period from the reign of Han Wu-ti to the usurpation of Wang Mang (i.e. 140 to 8 B.C.). The small diamond diaper pattern occurs on this bowl as it does on our *hu* and the similar use of the sawtooth pattern is striking. The diaper and sawtooth patterns appear on a vase of similar form, and with the same broad horizontal fluting around the shoulder, excavated by Janse in Indo-China.³⁹¹ Instead of the feather tips and lozenges, however, Janse's vase seems to have bands of animals in landscapes related to

³⁸⁸ Umehara, *SKS/J*, VI, illustrates 15 between no. 463 and no. 506 including the famous Buckingham *hu* also published by Kelley and Ch'en, Pl. LXXXIII. Karlgren illustrates three in *Some bronzes in the Museum of Far Eastern Antiquities*, Pls. 40-41; there is one in *Sekai, Chugoku . . .*, I, p. 86, fig. 22; and there are two in the *Hsi-ch'ing-ku-chien*, ch. 26, 51, and ch. 27, 19; and one in the Hui Tsung, *Po-ku-t'u-lu* (1752 ed.), ch. 13, 3.

³⁸⁹ *Op. cit.*, No. 502.

³⁹⁰ *Ch'ang-sha-fa-chüeh . . .*, pl. 64, 2; and text pp. 109-110, fig. 86.

³⁹¹ Janse, *Archaeological research . . .*, vol. I, p. xxvii, fig. 10.

those on our *lien* Number 120. The latter, in fact, seems to be one of the characteristic motifs for it appears frequently on both painted and incised ceramics from the same find.³⁹² Another motif shared by many members of this group is the quatrefoil that appears on the tops of our two *lien* (Nos. 119 and 120) and on a good number of the other pieces cited above. The same thing is also commonly found on some of the Ch'ang-sha mirrors and lacquers.³⁹³ Shou Chou, Anhui Province, which produced mirrors with related designs was also in the state of Ch'u at that time. It is also worth noting in this connection that a *lien* with the same quatrefoil executed in the same technique was among the finds at Lo-lang in Korea,³⁹⁴ but there is no evidence that it was made there.

As will be seen in the discussion of the two *lien* (Nos. 120 and 121), it is in this group of bronzes that we encounter some of the first attempts at the representation of landscape; but in the present vessel and the next, the most striking feature of the decor is that which we have named "feather tips." It appears on the *t'i-liang-yu* in the Ch'ien-lung Collection and the *an* in the Sumitomo Collection exactly as we see it on our two pieces.³⁹⁵ While we may never know what the designer had in mind when he drew it, the feathery look is undeniable, and it is hard to resist the suggestion that a peacock feather was intended.³⁹⁶ Artistically the problem is even more baffling because the motif seems to appear full blown on this group of bronzes for the first time in Chinese art and also for the last. So far nothing seems to lead up to it, and it leaves no trace in the centuries that follow, a most unusual phenomenon in the history of design and decoration.

TECHNICAL OBSERVATIONS

The vessel is cast in one piece, presumably by direct casting in a piece mold, but there are no visible mold marks. Centered on the underside is

³⁹² *Op. cit.*, pls. 54–55.

³⁹³ *Op. cit.*, pl. 68, 1; and *Ch'ang-sha-ch'u-t'u-Ch'u* . . . , illus. 39 (which is FGA 54.19); it is also seen on the top of a stone vessel in the above named excavation report, pl. 89, 3.

³⁹⁴ Sekino, *Rakuro* . . . , pls. 32–33 and Umehara, *op. cit.*, 481.

³⁹⁵ *Hsi-ch'ing* . . . , 27, 19; and Umehara, *SKS/J*, VI, 476.

³⁹⁶ Schafer, *The Golden peaches* . . . , pp. 96–99, gives notes on the history of the peacock in China.

NUMBER ONE HUNDRED EIGHTEEN

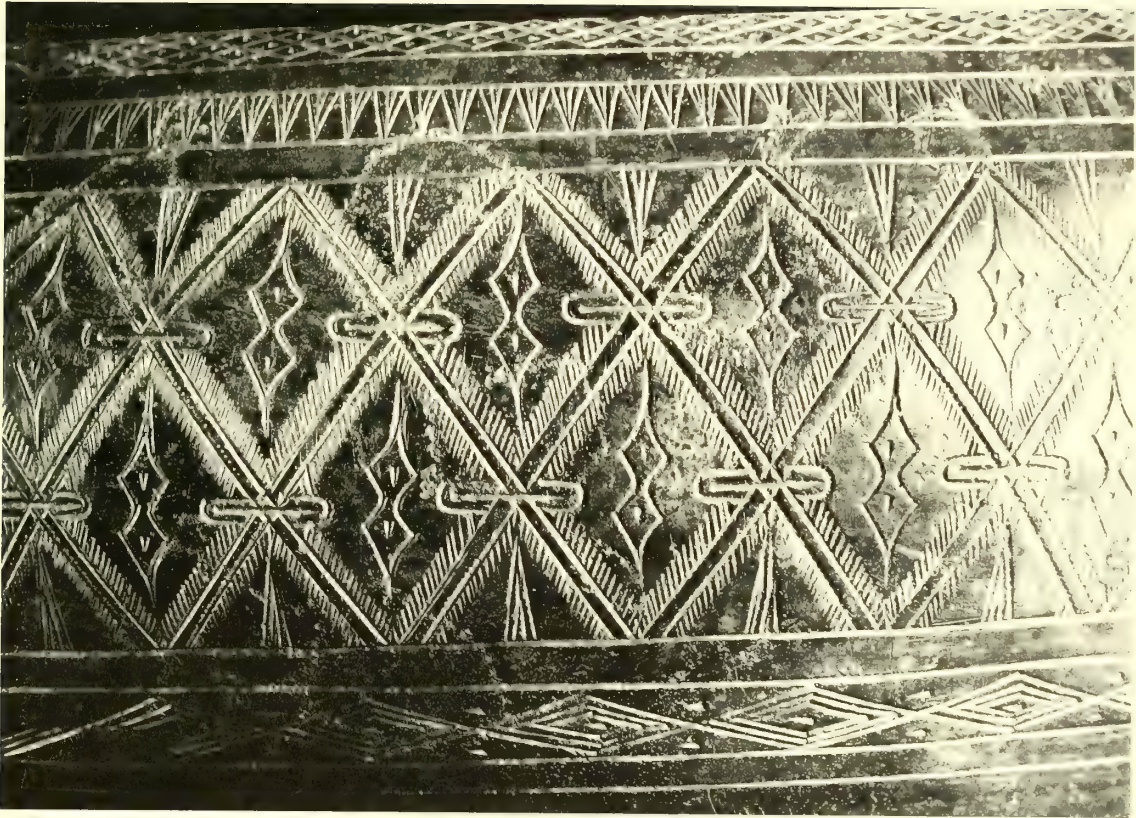
a low ridge about 6 cm. long and 0.5 cm. wide, obviously the stump of a pouring gate. The top of the stump bears marks as if it were hacked off with a chisel. Also underside are six squarish chaplets roughly symmetrically spaced. No chaplets are visible on the sides or under the body bulge. All of the fine geometric decor is engraved or traced.

The surface is quite uniformly covered with smooth, greenish-gray tin-oxide patina, but there are scattered small patches of malachite and azurite. Although the shape is generally quite symmetrical, there are irregularities along one side of the neck which seem to be partly original casting flaws and partly repair. On the same side on the upper body bulge is a patch of new metal about 4 cm. long and 2.5 cm. wide secured with soft solder and painted over. There is a remote possibility that at one time a handle connected body and neck. On the foot directly opposite the patches on neck and vessel is a small hole filled with soft solder and concealed with paint.

Composition: Sample taken from edge of foot.

Wet chemical analysis: Cu 66.6%; Sn 11.3; Pb 18.8; Total 96.7.

No spectrometric analysis made, except specifically for Zn which was found to be absent.



Detail of decor on side

Lien

Han dynasty (late 2nd–1st century B.C.)

No inscription

Height, 14.3 cm. ($5\frac{5}{8}$ in.)

Width, 15.5 cm. ($6\frac{1}{8}$ in.)

Weight, 0.96 kg. (2 lbs., 2 oz.)

Accession number 51.2

The circular covered vessel has a loose ring attached to the center of the lid. Inside is a shallow removable tray about an inch deep. The decoration is incised over the surface of the vessel. On the top is a quatrefoil pattern with birds and animals between the four points. Surrounding this are two bands of geometric patterns. The main surface of the body has a broad band of overlapping “feather tips.” Above and below this are two bands of geometric patterns like those on the lid. Three low round feet lift the vessel just off the ground. An even grayish patina covers the whole surface, and there are small areas of malachite encrustation.



NUMBER ONE HUNDRED NINETEEN (51.2)

NUMBER ONE HUNDRED NINETEEN

STYLE AND CHRONOLOGY

The notes under this heading on the preceding *hu* pretty well cover what there is to say about the group as a whole; but this *lien* introduces an additional feature that is worth mentioning. Where the cover joins the body of the vessel an animal has been incised in such a way that the head and most of the upper part of the body are on the lid while the legs and lower part of the body are on the vessel. Evidently this is an orientation device to make sure the cover is put on in the right position by coordinating the upper and lower halves of the animal. A similar animal is seen on the already mentioned *t'i-liang-yu* in the Chien-lung Collection; and Umehara illustrates three instances of the same device, one of them using a bird.³⁹⁷

TECHNICAL OBSERVATIONS

The three members, vessel, lid, and tray were probably not cast in piece molds. There are no exterior mold marks; but a single distinct line, apparently caused by a join in the mold or pattern, runs vertically down the inside surface of the wall of the vessel. Along the outer surface is a vertical line of small pits coinciding with the inside vertical line. The loop for the split ring handle of the lid is cast with the vessel as are the three short feet on the underside. A small depression on the underside of the lid coincides with the loop and ring handle above. It may be caused by shrinkage of the thicker metal of the loop at time of casting. A number of symmetrically placed chaplets are set around the lower portion of the cylindrical side and on the bottom which seems to be a common feature of vessels of this period. Those on the bottom are placed on either side of each leg knob and three more form a triangle around the center area. Other chaplets can be seen in the tray and around the walls. A few have loosened and fallen away. No chaplets are visible on the lid.

The bottom of the tray is thinly cast being barely 0.5 mm. thick. Three vertical deep scratch or "file" marks on the rim of the tray correspond to three similar marks on the edge of the stepped rim of the vessel. They

³⁹⁷ *Op. cit.*, nos. 476, 477, 482.

were placed there perhaps to indicate the correct position of the tray for proper fit.

As on the similar *lien* Number 120 described below, the sunken decor is cut or engraved into the surface. The stitches made by the engraver's tools are plainly visible. The horizontal lines encircling the vessel and lid appear to have been cut while the parts were turned on a lathe or perhaps more simply by a graver held parallel with the vessel edges.

The entire surface is covered with one of the finest quality tin oxide patinas in the collection. It is an excellent example of pseudomorphic replacement of copper by tin oxide with retention of the fine details of the original surface. In places the sharp edges of the oxide layer are chipped and crumbled by the deep penetration of the corrosion. In spite of the fine natural patina interrupted with small patches of malachite and azurite, the surface of the vessel bears a considerable amount of artificial patina applied for reasons not known. This false patina is found in patches on the side, but principally on the inside of the lid. It is made up chiefly of coarse but evenly sized green and blue particles which outwardly resemble coarsely ground malachite and azurite, but microscopically they seem to be agglomerates of fine colored particles in a glassy matrix. These agglomerate pigments which seem to be a Japanese invention are modern imitations of ancient pigments. The areas of artificial patina are well delineated by their pinkish fluorescence in ultraviolet light.

Composition: Sample taken from one of the short legs.

Wet chemical analysis: Cu 67.4%; Sn 10.1; Pb 20.0; Total 97.5.

Additional elements estimated by emission spectrometry: Ag 0.1%;

Fe 0.09; Co 0.001; Ni 0.05; As 0.2; Sb 0.04; Bi 0.2; Si 0.01.

The lead content of the alloy is unusually high.

Lien

Han dynasty (late 2nd–1st century B.C.)

No inscription

Height, 12.2 cm. ($4\frac{3}{4}$ in.)

Width, 15.2 cm. (6 in.)

Weight, 1.02 kg. (2 lbs., 4 oz.)

Accession number 46.11

This vessel is similar in size, shape and construction to the last, and the rattling pieces of loose metal inside suggest that it had a similar tray. In this case the proper orientation of the lid is indicated by two diamond patterns overlapping the join, but the lid has been frozen on an inch or so out of line. On the cover the four-petal lotus pattern is repeated; this time without animals between the points. Surrounding this is a band of dragon forms among waves, and on the main zone of design on the vessel itself are fabulous beasts in a landscape. A smooth, greenish patina covers the entire surface, and the metal of the vessel is evidently almost completely corroded. There are some areas of malachite encrustation. One side has been damaged and partly repaired.



NUMBER ONE HUNDRED TWENTY (46.11)

NUMBER ONE HUNDRED TWENTY

STYLE AND CHRONOLOGY

In addition to the characteristic features of this group that have been mentioned in discussing the preceding two vessels this *lien* introduces the subject of landscape. The scene covering the principal zone of the body shows dragons, tigers, bears and fabulous beasts running in a landscape. The *lien* illustrated in *Sekai bijutsu taikai*³⁹⁸ is very close to ours, and similar animal scenes appear on the vase excavated by Janse and referred to under Number 118, and also on the *hu* in the *Po-ku-t'u-lu* cited above,³⁹⁹ and also on the two pieces illustrated by Umehara.⁴⁰⁰ These crowded compositions with simple overlapping to indicate planes of perspective are among the earliest surviving evidence of the beginnings of landscape representation in China. On this *lien* the hills are merely suggested by a double wavy line at the base of the zone, and the spaces between the animals are filled with hatching that probably need not be understood as representing anything at all. On the two pieces in Japan, however, the animals are set against unmistakable ranges of hills, and on the Hakutsuru *Po-shan-lu* fungus shaped clouds rise above the peaks. The absence of human figures and the very different treatment of the animals place these vessels in an entirely different category from the "hunting style" *hu* family that has already been discussed (No. 98); and there is evidently no connection between them either chronologically or geographically. The present group apparently represents an independent development, perhaps in the Ch'u region, that had for its central theme the demon-world of folk mythology that underlay popular Taoism in Han times.

TECHNICAL OBSERVATIONS

Presumably both members, the box and cover, were cast without the use of piece molds, although the lack of a seam at the base of the small loop handle on the cover and the thinness of the vessel walls are the only evidence of the mode of fabrication. Seen from the underside the

³⁹⁸ *Sekai, Chugoku . . .*, p. 86, fig. 22.

³⁹⁹ *Op. cit.*, ch. 13, 3.

⁴⁰⁰ *Op. cit.*, 482 and 502.

NUMBER ONE HUNDRED TWENTY

bottom is not quite flush with the lower edge of the cylindrical sidewalls, but is slightly elevated as if made separately and set in. Unfortunately, because the cover is frozen in place by corrosion, the vessel cannot be examined from the inside. The most remarkable feature is the frieze of running animals which is sharply and deeply engraved into the metal. There is only slight evidence of stitches or chatter marks even along the wider and more deeply cut lines. Unlike those on the similar *lien* Number 119 just described, the horizontal encircling lines here are not straight and precise but wavy and of uneven depth. Also, chaplets do not seem to be present. Position indicators that are incised on the lid and vessel do not match, which may have caused a tight fit and be partial reason why vessel and lid do not separate.

The entire surface is quite uniformly covered with greenish-gray tin-oxide patina. There are only small patches of granular azurite. Scattered patches of earthy residues are found, especially on the underside. On one side a small area has been crushed in and crudely mended.

Composition: Sample taken from underside of one of the ball feet on the bottom.

Because of extensive corrosion, no fair sample for wet analysis was available.

Elements estimated by emission spectrometry: Cu principal; Sn >1%; Pb >1; Ag 0.2; Fe 0.03; Co 0.03; Ni 0.09; As 0.3; Sb >1; Bi 0.03; Mg < 0.001; Si 0.07.

Lien

Han dynasty (2nd–1st century B.C.)

No inscription

Height, 17.8 cm. (7 in.)

Width, 25.4 cm. (10 in.)

Weight, 3.77 kg. (8 lbs., 5 oz.)

Accession number 51.5

The cylindrical vessel supported by three feet in the shape of crouching bears is lacking its lid. The surface is covered with two horizontal bands showing fabulous beasts and birds in a mountainous landscape. The entire design is incised in moderately high relief in the metal. An even grayish-green patina covers the whole surface with only slight areas of encrustation.



NUMBER ONE HUNDRED TWENTY-ONE (51.5)

NUMBER ONE HUNDRED TWENTY-ONE

STYLE AND CHRONOLOGY

The closest relative to this remarkable bronze is the *lien* published by Umehara (No. 482) and cited in the discussion of the preceding piece. It is likewise raised on three bear legs; the main body zone features the same stalking or running animals, with the same lozenge pattern in the narrow bands above and below. The similarity suggests that ours probably was furnished originally with a hill-shaped lid.

The main decor on the other piece, however, is executed in the standard manner for the Ch'ang-sha bronzes, incised into the smooth surface. That on the present *lien*, by contrast, is in fairly high relief, evidently cast in the rough and then finished with tooling, chiseling, and incising of exceptional skill. The designs are also of greater complexity and refinement than any others in this group, although they would seem to derive from the type seen on our Number 120, the Yamanaka *lien*, and the *Po-shan-lu* in the Hakutsuru Museum, also referred to above. In a hypothetical stylistic series, Number 120 would be the earliest of these, with its simple wavy-line rendering of hills at the base; the Yamanaka and Hakutsuru pieces would follow, with a single row of animals in each zone set against ranges of three-peaked hills. On the present piece, which would logically conclude the series, the animals and demons are in several levels, or registers, which appear to indicate, ambiguously, both height and distance. The overlapping of planes is more elaborate and more effectively managed, with animals emerging from behind hills at several points. There is also a greater variety of creatures, including humanoid demons.

Among objects of Han date that offer comparisons with this composition are a group of hill-censers, or *Po-shan-lu*, the finest of which, in the Freer Gallery of Art, was published by Archibald Wenley.⁴⁰¹ Their designs, like that on ours, are in what Sullivan terms the "compartmented style," in which the contour lines of slopes and hills, five-peaked now, form compartments enclosing animals, along with, in the cases of the censers, human figures and trees. The hill censers seem more advanced, or perhaps more allied with the tradition that produced the

⁴⁰¹ Wenley, *The question of the Po-shan-hsiang-lu*, pp. 5-12.

hunting-style bronzes of late Chou, in one regard: on them, the pictorial elements are juxtaposed so as to form scenes, or tableaux: a man shoots at an animal in a tree, a human with a spear attacks a bear, etc. On the *lien*, there is little attempt to suggest any relationship between the creatures. Also, as Wenley points out, the geometric designs inlaid in gold and silver have obvious affinities with late Chou designs of the style seen in objects from Chin-ts'un near Lo-yang,⁴⁰² although, one must add, they betray the later period by being more static, lacking the fanciful character of late Chou designs.

Other indications, however, connect the censers with the group of bronzes we have been considering. A pottery example with an identical design, now in the Yale Art Gallery, New Haven, was found at Ch'ang-sha.⁴⁰³ This is not in itself sufficient evidence for associating the whole group with that provenance. But we may note also that bronze examples other than ours, without the gold and silver inlay and inset stones, were apparently made by the same distinctive technique as the present *lien*; i.e., casting followed by tooling and incising.⁴⁰⁴ A search for antecedents also brings us to Ch'ang-sha; just as the present *lien* can best be understood as a further development of the type seen in the Yamanaka *lien*, as suggested above, so can these hill-censers be seen as end-products of a parallel development from the Ch'ang-sha style hill-censer in the Hakutsuru Museum.⁴⁰⁵

If these bronzes belong to a southern (or properly central) Chinese tradition, originating in the Ch'u state and carried on in the same area for some two centuries (or longer?) after the Han reunification, an even stronger case can be made than has been done previously for the primacy of the Ch'u area artists and artisans in the evolution of a more naturalistic art, with more effective use of landscape elements to provide a setting, in late Chou and Han. The likelihood of such a separate tradition is emphasized when we contrast the designs we have been treating

⁴⁰² Wenley, *op. cit.*, p. 8.

⁴⁰³ Wenley, *op. cit.*, p. 7 and Pl. 2c.

⁴⁰⁴ Examples in the Royal Ontario Museum, Toronto, and the Fogg Art Museum, Cambridge; see Trubner, *Arts of the Han dynasty*, nos. 43 and 44.

⁴⁰⁵ Umehara, *SKS/J*, VI, 502.

NUMBER ONE HUNDRED TWENTY-ONE

with renderings of similar subjects in gold and silver inlay, the technique of decoration more favored by northern artisans, the heirs of Chin-ts'un. Examples are the inlaid bronze tubes in the Hosokawa Collection and the Tokyo Art School.⁴⁰⁶ The former places birds and animals within an abstract pattern of typical Han cloud-scrolls which can only in the loosest sense be said to "represent" landscape forms, although they certainly stand for them. The latter, while far closer to the designs on the *lien* and censers and sharing some motifs with them (notably the naturalistically drawn animals), is far more a matter of linear pattern, confined to the surface, concerned with swift movement and decorative effect. The forms have none of the solidity and bulk, the scenes have none of the implied depth, of the *lien* and censer relief designs. These differences are not to be accounted for purely by the differing media, but rather in terms of separate, although sometimes interacting, development. (The Freer *Po-shan-lu*, for instance, might well be seen as the hybrid product of such interaction.) Further study, and the discovery of more pieces of known date and provenance through controlled excavations, should clarify this question of regional traditions, and may well lead to some modification of that concept of the early evolution of landscape art in China which sees it as a movement "from formal abstraction toward an ever-increasing naturalism,"⁴⁰⁷ by revealing these contrasting qualities to have been the properties of separate, contemporaneous developments, rather than of stages in a unilinear evolution.

TECHNICAL OBSERVATIONS

The vessel is cast, but no mold marks are visible. It has some unusual features. The inside walls of the bronze are slightly undulating. Two vertical narrow sunken lines show in the inside, on opposite sides, but not at all on the outside. They look like lap joins in some plastic material used for the model. The escutcheons for the two split handle rings are cast integrally with the vessel, but the three legs, which are solid, are cast separately. There is a narrow seam around each leg join, and in some

⁴⁰⁶ The former in Mizuno, *In-shū* . . . , 166 and 167; the latter in Harada

⁴⁰⁷ Sullivan, *The birth of landscape painting in China*, p. 59.

NUMBER ONE HUNDRED TWENTY-ONE

places it is possible to insert a thin blade to a depth of 1 to 2 mm. The overflow or lap is from leg to body indicating the legs were cast to the body. Low elevations of metal inside the vessel just above the legs indicate the leg metal was poured through perforations in the bottom and locked in place by underflowing the edge. Across the underside is a low ridge about 8 cm. long and 0.5 cm. wide, which appears to be a cut-off sprue. It has been abraded down to the level of the bottom.

The vessel proper and the figures in high relief were probably cast without using piece molds. All of the fine detail, however, the tiny whorls, the checkered background, and the diamond pattern of the border appears to be chased or engraved. Other design elements were made with a tracer or ring punch.

A distinguishing feature of the vessel is the large number of chaplets, about 30, in the vessel wall. They seem to be located consistently in areas of low relief. Most of them are square, about 0.5 cm. on a side, and many are crossed by unbroken lines of the engraved decor. There are also a number of chaplets in the bottom; many of them show no seams at the edges and can only be detected by their slight color contrast with the surrounding metal.

The entire surface is covered with smooth, gray-green tin-oxide patina giving the object a handsome appearance. There are only minor areas of thin corrosion crusts. The condition is excellent.

Composition: Sample taken from underside of one leg.

Wet chemical analysis: Cu 87.1%; Sn 10.4; Total 97.5.

Additional elements estimated by emission spectrometry: Pb 0.1%;
Ag 0.01; Fe 0.03; Co 0.01; Ni 0.09; Sb 0.02.

This is one of the few bronze vessels in which lead, except for a trace, is absent.

Lien

Han dynasty (1st century B.C.–1st century A.D.)

No inscription

Height, 18.1 cm. ($7\frac{1}{8}$ in.)

Width, 19.7 cm. ($7\frac{3}{4}$ in.)

Weight, 1.79 kg. (3 lbs., 15 oz.)

Accession number 23.2

This vessel of standard *lien* shape is entirely gilded on the surface and incised with bands of scroll designs and geometric patterns. On the central band are two escutcheon masks holding loose rings. The incised scroll patterns are repeated inside the lid and under the vessel where they are painted in red and green pigments and also include flying birds. The surface shows a good deal of malachite encrustation, and the vessel has been much damaged and repaired.



NUMBER TWENTY-TWO (35.12)

NUMBER ONE HUNDRED TWENTY-TWO

STYLE AND CHRONOLOGY

A surprisingly large number of closely related *lien* exist from the Han period. Most, if not all, of the extant examples in gilt bronze have cloud-scroll patterns engraved on their exterior surfaces; in at least one case, this has been transformed into a landscape with animals.⁴⁰⁸ The design of phoenix and tortoises painted inside the lid is to be seen also in three or four other *lien* of the period.⁴⁰⁹ In these painted designs, the cloud-scroll pattern serves as a background to the phoenix, presumably representing actual clouds here, although the striding or dancing position of the birds' legs would suggest rather that they are on the earth. The manner of the drawing, in fine line of even thickness combined with flat washes of color, is standard for early Chinese painting, but few examples of such delicacy and refinement have survived from the Han period. There seems to be no clear evidence for dating these vessels; Mizuno places the Tenri Museum *lien* in the Western Han period, without giving his reasons for doing so.

TECHNICAL OBSERVATIONS

Both members, vessel and lid, seem to be cast in one piece since no joins or seams can be seen at the edges of the legs or along the *t'ao-t'ieh* handle escutcheons. The three raised bands that run around the sides appear to be cast integrally with the vessel. There are no visible mold joins. The handle rings are split. The three spindles on the lid, which serve as handles, coincide with rivet-like protruberences underneath. These spindles may have been cast to the lid through holes previously prepared for the purpose. The artist has used the "rivet heads" as the bodies of tortoises in the painted design of the under surface. Two chaplets in the

⁴⁰⁸ Pillsbury Collection, Minneapolis; see Karlgren, . . . *Pillsbury . . .*, no. 62, Pl. 87. Others in Umehara, *SKS/E*, III, 231, (Berlin Museum) and *SKS/J*, VI, 485 (M.F.A., Boston); Watson, *Ancient Chinese bronzes*, 78b (Victoria and Albert Museum); and Kidder, *Early Chinese bronzes . . .*, Pl. XXVIII, 30.51.

⁴⁰⁹ One, with the finest painting, in the Tenri Museum; see Mizuno, *Kandai no kaiga*, colorplate 1. Another, on which the tortoises are not visible in the reproduction but probably present in the Sumitomo Collection; see Umehara, *SKS/J*, VI, 483. A third in the former Eumorfopoulos Collection; see Umehara *SKS/E*, III, 233 (lid only reproduced). According to Umehara, the painted design, illegible in his reproduction, inside the lid of the *lien* he published as ex-collection of S. Kawai (*SKS/J*, VI, 487) has since been cleaned to reveal another picture of a phoenix. The vessel is now in the Nelson Gallery.

NUMBER ONE HUNDRED TWENTY-TWO

lid and one in the vessel side are easily discernible; and there may be others in both lid and vessel hidden under corrosion.

The fine-line decor of the vessel is not cast but is traced. The exterior vessel sides and top of the lid are thinly gilded, done possibly by the fire gilding (mercury) process. The inside of the lid and both sides of the bottom bear painted designs of birds and animals outlined in black against a red background. The red pigment was identified as vermilion; the green is malachite; and the white is a fine inert material, not precisely identified but probably a clay mineral.

The sides of the vessel have been badly damaged and crudely repaired with soft solder. The repairs were originally concealed with a thick layer of artificial patina, but this has been removed. Some natural corrosion crusts of malachite and some limy deposits still overlie the gilding. The lid, fortunately, is in much better condition; and here the fine-line decor can be seen to best advantage.

Composition: Sample taken from leg.

Wet chemical analysis: Cu 78.8%; Sn 5.7; Pb 12.1; Total 96.6.

Additional elements estimated by emission spectrometry: Ag 0.2%; Fe 0.2; Co 0.09; Ni 0.09; As 0.2; Bi 0.04; Al 0.002; Si 0.002.

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Acad S – *Academia Sinica Bulletin*, Taipei.
ACASA – Archives of the Chinese Art Society of America, New York.
Acta A – *Acta Asiatica*, Tokyo.
AQ – *Art Quarterly*, Detroit.
AS – *Archaeologia Sinica*, Nan-kang, Taiwan.
BK – *Bijutsu Kenkyū*, Tokyo.
BM – *Burlington Magazine*, London.
BMFEA – *Bulletin of the Museum of Far Eastern Antiquities*, Stockholm.
CKKHP – *Chung kuo k'ao-ku hsüeh-pao*, Nanking.
CMAB – *Cleveland Museum of Art Bulletin*.
CON – *Connoisseur*, London.
GBA – *Gazette des Beaux-arts*, Paris.
KG – *Kaogu*, Peking.
KKHP – *K'ao-ku hsüeh-pao*, Peking.
MS – *Monumenta Serica*, Peking.
NYMMA – *New York Metropolitan Museum of Art Bulletin*.
OA – *Oriental Art*, London.
RAA – *Revue des Arts Asiatiques*, Paris.
RAS – *Royal Asiatic Society Journal*, Shanghai.
SA – *Sinologische Arbeiten*, Peking.
TG – *Tōhō Gakuhō*, Kyoto and Tokyo.
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TOCS – *Transactions of the Oriental Ceramic Society*, London.
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LIST OF CHINESE CHARACTERS

An (vessel)	盃	Hai-tao-ying-tze	海島營子
An-yang	安陽	Han-huang-fu-kuei	鬲皇父簋
Chan-kuo	戰國	Hêng	享
Chang-chia-p'ò	張家坡	Hou-chia-chuang	侯家莊
Ch'en-ch'en	臣辰	Hou-ma	侯馬
Ch'en Chieh-ch'i	陳介祺	Hsi-pei-kang	西北岡
Chi-po-kuei	杞伯簋	Hsi-wang-mu	西王母
Ch'i (axe)	戚	Hsiang, Duke of Lu	魯襄公
Chia (vessel)	罍	Hsiao-t'un	小屯
Chih (vessel, early type)	觶	Hsien (vessel)	甗
Chih (vessel, later type)	卣	Hsin-cheng	新鄭
Ch'ih (dragon)	螭	Hu (vessel)	壺
Chin-ts'un	金村	Hu-hsien	鄆縣
Ch'in kuei	禽簋	Huai-ho	淮河
Ch'in-kung-kuei	秦公簋	Huan-kung	桓公
Ching-kuei	靜簋	Huang-ch'ih Hu	黃池壺
Chio or chiao (vessel)	角	Huang-ho (Yellow River)	黃河
Chu-nü-kuang	諸女觥	Hui Hsien	輝縣
Ch'u	楚	Huo (vessel)	盃
Ch'un-ch'iu	春秋	I (vessel)	彝
Chung-chou-lu	中州路	I (pouring vessel)	匜
Chung-kuei	中簋	Jui-kung-ting	芮公鼎
Chüeh (vessel)	爵	Jung-tzu	榮子
Erh-li-t'ou	二里頭	Keng-jen-ting	庚兒鼎
Fang-hu	方壺	Keng-ying-yu	庚嬴卣
Fang-i	方彝	Ku (vessel)	觚
Fang-ting	方鼎	Kuang (vessel)	觥
Fang-tsun	方尊	Kuei (vessel)	簋
Feng-hsi	豐西	K'uei (dragon)	夔
Fu-chai	夫差	Lan-t'ien	藍田
Fu-feng	扶風	Lei (vessel)	鬲
Fu-shih-li-kuei	輔師簋	Lei-wen	雷文

Li-yü	李峪	Ta-pao-kuei	大保簋
Liu-li-ko	琉璃閣	Ta-ssu-k'ung-ts'un	大司空村
Lu-kuei	象簋	T'ai-pu-hsiang	太僕鄉
Lung (dragon)	龍	Tan-i	單彝
Mi-shu-kuei	弭叔簋	T'ang-shan	唐山
Ming-ch'i	明器	T'ao-t'ieh	饕餮
Mu-t'ien-tzu-chuan	穆天子傳	T'i-liang-yu (vessel)	提梁卣
P'an (vessel)	盤	T'ien-kan	天干
Pao-chi-hsien	寶雞縣	T'ien-wang-kuei	天亡簋
Pien-hu (vessel)	扁壺	Ting (vessel)	鼎
Po-shan-lu	博山鑪	T'o-kuei	宅簋
P'ou (vessel)	瓠	Tso-chuan	左傳
P'u-tu-ts'un	普渡村	Tso-pao-ting	作寶鼎
San-tai	三代	Tsun (vessel)	尊
Shan-fu-k'o-ting	善夫克鼎	Tui (vessel)	敦
Shan-piao-chen	山彪鎮	Wang Mang	王莽
Shang-ts'un-ling	上村嶺	Wang-ssu	王寺
Shao-hsing	紹興	Wang-sun i-che chung	王孫遺者鐘
Shih-ch'i-ting	師旂鼎	Wei	衛
Shih-yu-kuei	師酉簋	Ya-hsing	亞形
Shou Hsien	壽縣	Yen-shih Hsien	偃師縣
Shou-kung-p'an	守宮盤	Yen-tun-shan	煙墩山
Shu-wei	蜀魏	Yu (vessel)	卣
Ssu-mu-wu-fang-ting	司母戊方鼎	Yü (vessel)	盂
Ssu-po-ts'un	寺坡村	Yü-ting	禹鼎
Sung-kuei	頌簋	Yürinkan	有隣館

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